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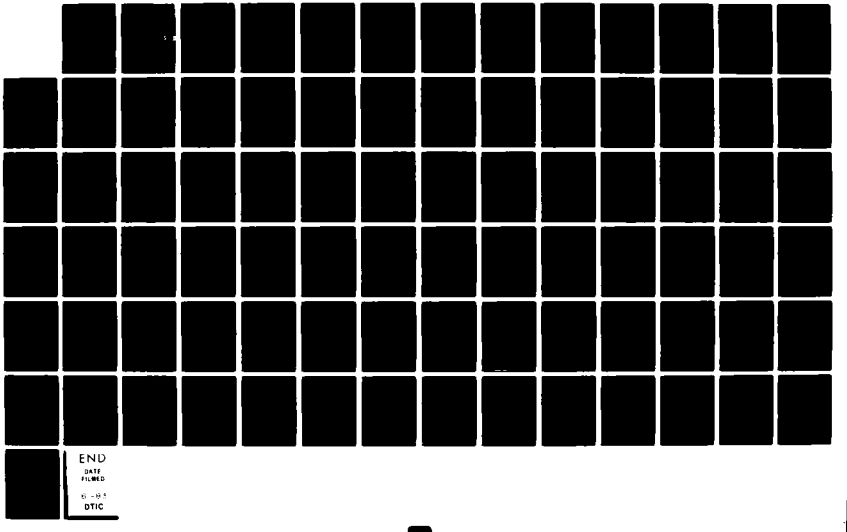

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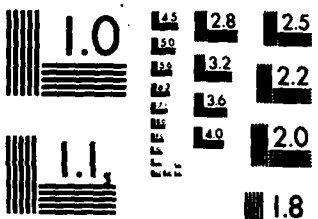

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TRANSPORT PROPERTIES OF SELECTED ELEMENTS AND COMPOUNDS IN THE GASEOUS STATE (Part 2)

By
P. E. Liley

AD A129060

TPRC Report 22

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Prepared for
Air Force Office of Scientific Research

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Tables of viscosity, thermal conductivity, and diffusion coefficient have been prepared for sixty-nine binary mixtures. The temperature range was from 100 to 3000 K. For the substances comprising the binary mixtures recent recommendations were used, some of these being taken from our earlier report (Part 1). For the mixtures the Lennard-Jones 6-12 potential was used for viscosity and diffusion, and a linear mixing rule was employed for thermal conductivity. The precision of the tabulated values is reviewed. It is concluded that significant discrepancies can still exist between theoretical and experimental quantities.

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ABSTRACT

Tables of viscosity, thermal conductivity and diffusion coefficient have been prepared for sixty-nine binary mixtures. The temperature range was from 100 to 3000 K. For the substances comprising the binary mixtures recent recommendations were used, some of these being taken from our earlier report (Part 1). For the mixtures the Lennard-Jones 6-12 potential was used for viscosity and diffusion, and a linear mixing rule was employed for thermal conductivity. The precision of the tabulated values is reviewed. It is concluded that significant discrepancies can still exist between theoretical and experimental quantities.

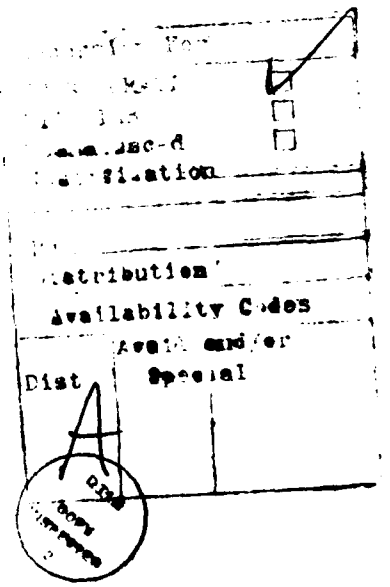

TABLE OF CONTENTS

LIST OF TABLES

Introduction

Because of continuing current interest, the properties of gases and gas mixtures of interest in chemical laser applications were studied. This final technical report constitutes the second in this series and supplements those substances and mixtures reported earlier [1]*. The present report also recommends further work.

Theoretical and Empirical Methods

In the earlier report the approach was taken that the Lennard-Jones 6-12 potential was used to calculate the viscosity and diffusion coefficients. For user convenience a brief summary of that material is reproduced here. For gaseous viscosity the mixture viscosity, μ_M, is given by

$$\mu_M = \frac{1 + Z}{X + Y} \tag{1}$$

where

$$X = \frac{x_1^2}{\mu_{11}} + \frac{2x_1 x_2}{\mu_{12}} + \frac{x_2^2}{\mu_{22}}$$

$$Y = \frac{3A_{12}}{5}\left\{\frac{x_1^2}{\mu_{11}}\frac{M_1}{M_2} + \frac{2x_1 x_2}{\mu_{12}}\frac{(M_1 + M_2)^2}{4M_1 M_2} + \frac{x_2^2}{\mu_{22}}\frac{M_2}{M_1}\right\}$$

$$Z = \frac{3A_{12}}{5}\left\{x_1^2\frac{M_1}{M_2} + 2x_1 x_2\left[\frac{(M_1 + M_2)^2}{4M_1 M_2}\left(\frac{\mu_{12}}{\mu_1} + \frac{\mu_{12}}{\mu_2}\right) - 1\right] + x_2^2\frac{M_2}{M_1}\right\}$$

In these equations M_1, M_2, x_1, and x_2 are the molecular weights and mole fractions of components 1 and 2 and the μ_{11}, μ_{12}, and μ_{22} represent the viscosities of component 1, a hypothetical gas 12 and component 2. The gas 12 is assumed to obey the same potential as gases 1 and 2 but to have a molecular weight M_{12} of $2M_1 M_2/(M_1 + M_2)$, a collision diameter σ_{12} of $(\sigma_1 + \sigma_2)/2$ and a well depth ϵ_{12}/k of $\sqrt{(\epsilon_1/k)\ (\epsilon_2/k)}$. A_{12} is a collision integral function, tabulated simply as A in [1]. The μ_{ij} are given by

$$10^7 \mu_{ij} = 266.93\sqrt{M_{ij}T}/\left\{\sigma^2 \Omega_{22}\ (kT/\epsilon_{ij})\right\},\ \left\{\begin{matrix} i = 1,2 \\ j = 1,2 \end{matrix}\right\} \frac{gm}{cm\ sec} \tag{2}$$

where the Ω_{22} is a collision integral, described and also partially tabulated in [1]. The quantities tabulated in our tables are μ_{11}, μ_{12}, and μ_{22} so that equation (1) should then be used to calculate μ_M.

* Numbers in square brackets refer to the reference list.

For diffusion the equation

$$10^5 D_{ij} = \frac{262.8}{P\sigma^2_{ij}}\sqrt{\frac{T^3}{M_{ij}}}\ \frac{1}{\Omega_{ij}\ (kT/\epsilon_{ij})}\ \frac{cm^2}{sec} \qquad (3)$$

can be used and the quantities tabulated are D_{11}, D_{12}, and D_{21}, for P = 1 atm.

For thermal conductivity a more empirical approach was adopted. Values for the pure components were taken from earlier works [2,3] where possible. These values basically are curve-fits for the lower temperatures (i.e., below about 1000 K) faired into power function fits to the data (if any existed) above 1000 K or from a similar analysis of high temperature viscosity data. Values for the mixtures are merely the average (i.e., equimolar) values for the pure components, based on the premise that the thermal conductivity of a mixture is a linear function of its composition.

The summary of theoretical work in our earlier report led to the conclusion that no intermolecular potential is capable of representing the data for all properties to within the experimental error. This is due to orientation effects and inelasticity in collisions coupled with the inability to perform the mathematical calculations to sufficient accuracy and the fact that high energy collision and spectroscopic data may yield still different intermolecular potential values. This conclusion is in part supported by the more recent analysis [6,7] of the ability of the m-6-8 potential to simultaneously fit viscosity and second virial coefficient data for non-polar polyatomic gases. It was found that additional terms were necessary to represent the virial coefficient behaviour. This implied that a more comprehensive potential should then likewise be used to calculate the viscosity (and, of course, other properties). This is an enormous complication, both from the fundamental difficulty of calculating functions for comprehensive potentials and from the more practical viewpoint of fitting such potentials to the experimental data. While it is stated [6] that "work is in progress to modify the m-6-8 potential to include non-spherical effects" one reads on the same page that "one assumes that the molecules collide with a fixed relative orientation and collision integrals are calculated for each orientation independently. The final values of the collision integrals are then determined by a statistical averaging over all these possible orientations". Here is the important fact that the calculations to date assume a fixed relative orientation. This, coupled with the averaging requirement will, in the opinion of the writer, introduce sufficient uncertainty so as to negate possible improvements by modifying the potential. Indeed, it appears probable that this stage has already been reached from a fundamental viewpoint by the failure of

the potential to correctly model the dispersion coefficients, as was already mentioned in the discussion of equation (4) of our earlier report [1]. An extensive review [8] of some aspects of intermolecular forces does nothing to dispel the conclusion that realistic potentials are not yet available for molecules of complex structure. Hence, in the present work our previous use of the Lennard-Jones 6-12 potential is continued, especially as no extensive investigations of the ability of other potentials to represent the transport properties of gaseous mixtures appear to have been made.

Selection of Lennard-Jones 6-12 Parameters

The parameters for substances which have previously received attention in the literature were taken, where possible, from the tables of Svehla [10] for reasons detailed in our earlier report. Parameters for other substances were estimated using procedures either identical or similar to those of Svehla. The following table reproduces values of parameters for pure component substances not tabulated in our previous report.

Lennard-Jones 6-12 Parameters for Pure Gases

Gas	$\epsilon/K(^\circ K)$	σ (Å)	$1/\sqrt{M}$
He	10.22	2.551	0.49980
N_2	113.50	3.566	0.18894
A	138.20	3.287	0.15822
H_2	59.70	2.827	0.70430
D	35.20	2.664	0.70712
NH_3	558.30	2.900	0.24232
ND_3	337.00	2.900	0.22357
N_2H_4	760.00	3.180	0.17665
N_2D_4	462.00	3.380	0.16664
F_2	112.60	3.357	0.16223
F	112.60	2.968	0.22942
NF_3	175.00	4.154	0.11868
N_2F_4	240.00	3.880	0.09805
ClF_5	448.30	4.900	0.08770
HF	330.00	3.148	0.22357
DF	199.10	2.826	0.21223
HCl	344.70	3.339	0.16559
DCl	208.00	2.980	0.16340
H	37.00	2.701	0.99210
D_2	35.21	2.952	0.50000

No analogous table to that of our previous report for all the gas pairs considered here is given in this report as the tables of the present report were generated from a computer program in which the mixture parameters were internally generated from the pure component values.

Calculation of Transport Properties of Pure Gases and of Gas Mixtures

The computer print-out was, in fact, programmed so that the tables of viscosity and diffusion coefficient appearing in this report are edited copies of the computer sheets. The thermal conductivity values were based on experimental data, correlated with theory if possible as described in [3], or were generated by applying corrections for internal degrees of freedom to the calculated translational effect. In the latter case, some substances showed a significant divergence between the theoretical and the experimental values. In such cases, the calculated values were reduced to bring them into general accord with the experimental data. A comment is made on this in the Recommendations section. In our programming we adopted the fittings of Neufeld, Janzen, and Aziz [11] to generate the 6-12 collision integrals. It should be noted that their representation is only valid for reduced temperatures from 0.3 to 100 and not from 0.1 to 0.3 or from 100 to 400. Some problems were encountered before this fact was realized. While the lower end gives no practical difficulty, substances with low characteristic well depths, ϵ/k, can yield reduced temperatures over 100. A suitable blocking procedure was thus written into the program to prevent the computer extrapolating the calculation into regions where the reduced temperature exceeded one hundred. For the few cases where this occurred, tables were numerically generated using the approximations

$$\Omega_{11} = 1.10670\ (T^*)^{-0.1575}$$
$$\Omega_{22} = 0.07183\ (T^*)^{-0.1523} \qquad (4)$$

which have been found to yield collision integrals accurate to 1/4 percent for reduced temperatures over 25. In fact, the use of the Lennard-Jones potential at such high reduced temperatures is physically unrealistic due to the predominance of the repulsive part of the potential for which an exponential dependence on intermolecular separation is preferable to a power one.

Summary and Recommendations

In the eighteen months duration of this project the first six months saw the preparation of tables of the thermal conductivity, viscosity, and Fickian diffusion coefficient for 38 binary mixtures and 9 pure substances which were distributed through AFOSR [1]. The present report gives tables for an additional 69 binary mixtures. Both sets of tables refer to the dilute gas state and present tables at 100 K increments from 100 K to 3000 K. The division of work between the two sets of tables followed AFOSR assessment of relative priority of the different mixtures and pure gases.

As a result of the work, some facts and conclusions can be stated. These can be summarized as

1. No tables have yet been generated for pressures above the atmospheric pressure (= dilute gas) state. While a detailed analysis would require a prolonged effort, an approximate study could be made using empirical tools of moderate accuracy. Some of the problems here are connected with the accuracy with which AFOSR/AFWL/others might require the effect of pressure to be known.
2. Of the three properties with which we have been concerned, thermal conductivity is the most uncertain. While estimates of the intermolecular potential affect all three properties, for thermal conductivity above the effect of the internal degrees of freedom can outweigh the translational energy contribution. It is proposed to pursue the problem of estimating the internal effect by generalized correlations firstly and then by rigorous theory if time allows.
3. Only one intermolecular potential function has been used to any extent to calculate mixture properties. Attention should be expanded to other potentials.
4. A useful further approach would be to use the Prandtl number as a means of obtaining thermal conductivies based on critically evaluated viscosity and specific heat values available from TPRC or other reliable sources.

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TABLE 1. TRANSPORT PROPERTIES OF HYDROGEN-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-H_2	H_2-H_2	N_2-N_2	N_2-H_2	H_2-H_2	N_2-N_2	N_2-H_2	H_2-H_2	
100	65	35	38	9	38	68	0.03	0.10	0.20	100
200	128	65	66	18	73	128	0.10	0.37	0.71	200
300	179	89	89	26	104	182	0.21	0.76	1.43	300
400	223	109	108	33	127	221	0.34	1.25	2.33	400
500	262	127	125	39	148	257	0.50	1.83	3.39	500
600	297	143	141	44	167	291	0.69	2.49	4.59	600
700	330	159	156	49	187	325	0.89	3.22	5.93	700
800	361	173	170	54	207	360	1.12	4.03	7.41	800
900	390	187	184	59	226	394	1.37	4.90	9.00	900
1000	418	200	197	63	245	428	1.63	5.84	10.72	1000
1100	445	213	209	67	263	460	1.91	6.84	12.56	1100
1200	471	225	221	71	282	493	2.21	7.90	14.50	1200
1300	496	237	233	75	300	526	2.52	9.02	16.56	1300
1400	521	249	244	80	319	559	2.85	10.19	18.72	1400
1500	544	260	256	84	338	592	3.20	11.43	20.99	1500
1600	568	272	267	89	356	624	3.56	12.72	23.36	1600
1700	591	282	277	95	376	657	3.94	14.06	25.82	1700
1800	613	293	288	101	395	689	4.33	15.46	28.39	1800
1900	635	304	298	108	414	720	4.73	16.91	31.05	1900
2000	656	314	308	115	433	752	5.15	18.41	33.80	2000
2100	677	324	318	121	452	783	5.59	19.95	36.64	2100
2200	698	334	328	126	469	813	6.03	21.55	39.58	2200
2300	718	343	337	131	487	843	6.50	23.20	42.60	2300
2400	738	353	347	136	504	873	6.97	24.89	45.71	2400
2500	758	363	356	141	522	903	7.46	26.63	48.91	2500
2600	778	372	365	146	539	932	7.96	28.42	52.19	2600
2700	797	381	374	151	555	960	8.47	30.26	55.56	2700
2800	816	390	383	155	571	987	9.00	32.13	59.00	2800
2900	835	399	392	160	587	1014	9.54	34.06	62.54	2900
3000	853	408	400	165	603	1042	10.09	36.02	66.15	3000

TABLE 2. TRANSPORT PROPERTIES OF HYDROGEN-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{5}$)			Thermal Conductivity ($W\,m^{-1}\,K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\,s^{-1} \cdot 10^{-4}$)			Temp. (K)
	H_2-H_2	H_2-A	A-A	H_2-H_2	H_2-A	A-A	H_2-H_2	H_2-A	A-A	
100	38	37	83	68	37	7	0.20	0.10	0.02	100
200	66	70	166	128	70	12	0.71	0.39	0.09	200
300	89	96	237	182	99	17	1.43	0.80	0.19	300
400	108	118	298	221	121	22	2.33	1.33	0.32	400
500	125	138	352	257	141	26	3.39	1.94	0.47	500
600	141	156	401	291	160	30	4.59	2.64	0.65	600
700	156	173	447	325	179	34	5.93	3.43	0.85	700
800	170	188	490	360	198	37	7.41	4.29	1.06	800
900	184	203	531	394	217	40	9.00	5.22	1.30	900
1000	197	218	569	428	235	43	10.72	6.22	1.55	1000
1100	209	232	607	460	252	45	12.56	7.28	1.82	1100
1200	221	245	642	493	270	48	14.50	8.41	2.11	1200
1300	233	258	677	526	288	51	16.56	9.61	2.41	1300
1400	244	271	710	559	306	54	18.72	10.87	2.72	1400
1500	256	284	743	592	324	56	20.99	12.18	3.05	1500
1600	267	296	775	624	341	59	23.36	13.56	3.40	1600
1700	277	307	806	657	359	62	25.82	14.99	3.76	1700
1800	288	319	837	689	376	64	28.39	16.48	4.14	1800
1900	298	330	866	720	393	67	31.05	18.02	4.52	1900
2000	308	342	896	752	410	69	33.80	19.62	4.93	2000
2100	318	353	925	783	427	72	36.64	21.27	5.34	2100
2200	328	363	953	813	443	74	39.58	22.97	5.77	2200
2300	337	374	981	843	460	77	42.60	24.73	6.21	2300
2400	347	384	1008	873	476	79	45.71	26.53	6.66	2400
2500	356	395	1035	903	492	82	48.91	28.39	7.13	2500
2600	365	405	1062	932	508	84	52.19	30.29	7.61	2600
2700	374	415	1088	960	523	86	55.56	32.25	8.10	2700
2800	383	425	1114	987	538	89	59.00	34.25	8.60	2800
2900	392	434	1140	1014	552	91	62.54	36.30	9.12	2900
3000	400	444	1165	1042	568	94	66.15	38.40	9.64	3000

TABLE 3. TRANSPORT PROPERTIES OF ATOMIC HYDROGEN-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-H	H-H	N_2-N_2	N_2-H	H-H	N_2-N_2	N_2-H	H-H	
100	65	29	34	9	57	106	0.03	0.16	0.37	100
200	128	52	57	18	96	175	0.10	0.57	1.22	200
300	179	70	75	26	128	230	0.21	1.16	2.42	300
400	223	85	91	33	155	278	0.34	1.89	3.90	400
500	262	99	105	39	180	321	0.50	2.75	5.66	500
600	297	112	118	44	203	362	0.69	3.74	7.65	600
700	330	124	130	49	224	400	0.89	4.83	9.88	700
800	361	135	142	54	245	436	1.12	6.03	12.32	800
900	390	146	153	59	264	470	1.37	7.34	14.98	900
1000	418	156	164	63	283	504	1.63	8.74	17.83	1000
1100	445	166	175	67	301	536	1.91	10.23	20.88	1100
1200	471	175	185	71	319	567	2.21	11.82	24.12	1200
1300	496	185	194	75	336	597	2.52	13.49	27.53	1300
1400	521	194	204	80	353	626	2.85	15.25	31.13	1400
1500	544	203	213	84	369	655	3.20	17.10	34.90	1500
1600	568	211	222	89	386	683	3.56	19.03	38.84	1600
1700	591	220	231	95	402	710	3.94	21.04	42.94	1700
1800	613	228	240	101	419	737	4.33	23.13	47.20	1800
1900	635	236	249	108	435	763	4.73	25.29	51.62	1900
2000	656	244	257	115	452	789	5.15	27.54	56.20	2000
2100	677	252	265	121	468	814	5.59	29.85	60.93	2100
2200	698	260	273	126	482	839	6.03	32.24	65.81	2200
2300	718	267	281	131	497	863	6.50	34.71	70.83	2300
2400	738	275	289	136	512	888	6.97	37.24	76.01	2400
2500	758	282	297	141	526	911	7.46	39.85	81.32	2500
2600	778	289	305	146	540	935	7.96	42.52	86.78	2600
2700	797	297	312	151	555	958	8.47	45.26	92.38	2700
2800	816	304	320	155	568	981	9.00	48.07	98.11	2800
2900	835	311	327	160	581	1003	9.54	50.95	103.98	2900
3000	853	318	334	165	595	1026	10.09	53.89	109.99	3000

TABLE 4. TRANSPORT PROPERTIES OF ATOMIC HYDROGEN-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\,m^{-1}\,K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\,s^{-1} \cdot 10^{-4}$)			Temp. (K)
	A-A	A-H	H-H	A-A	A-H	H-H	A-A	A-H	H-H	
100	83	31	34	7	56	106	0.02	0.17	0.37	100
200	166	56	57	12	93	175	0.09	0.61	1.22	200
300	237	76	75	17	123	230	0.19	1.24	2.42	300
400	298	92	91	22	150	278	0.32	2.02	3.90	400
500	352	107	105	26	173	321	0.47	2.95	5.66	500
600	401	121	118	30	196	362	0.65	4.00	7.65	600
700	447	134	130	34	217	400	0.85	5.18	9.88	700
800	490	146	142	37	236	436	1.06	6.47	12.32	800
900	531	158	153	40	255	470	1.30	7.87	14.98	900
1000	569	169	164	43	273	504	1.55	9.37	17.83	1000
1100	607	180	175	45	290	536	1.82	10.98	20.88	1100
1200	642	190	185	48	307	567	2.11	12.68	24.12	1200
1300	677	201	194	51	324	597	2.41	14.48	27.53	1300
1400	710	210	204	54	340	626	2.72	16.37	31.13	1400
1500	743	220	213	56	355	655	3.05	18.35	34.90	1500
1600	775	229	222	59	371	683	3.40	20.42	38.84	1600
1700	806	239	231	62	386	710	3.76	22.58	42.94	1700
1800	837	248	240	64	400	737	4.14	24.82	47.20	1800
1900	866	256	249	67	415	763	4.52	27.14	51.62	1900
2000	896	265	257	69	429	789	4.93	29.55	56.20	2000
2100	925	274	265	72	443	814	5.34	32.04	60.93	2100
2200	953	282	273	74	456	839	5.77	34.60	65.81	2200
2300	981	290	281	77	470	863	6.21	37.24	70.83	2300
2400	1008	298	289	79	483	888	6.66	39.96	76.01	2400
2500	1035	306	297	82	496	911	7.13	42.76	81.32	2500
2600	1062	314	305	84	509	935	7.61	45.63	86.78	2600
2700	1088	322	312	86	522	958	8.10	48.57	92.38	2700
2800	1114	330	320	89	535	981	8.60	51.59	98.11	2800
2900	1140	337	327	91	547	1003	9.12	54.67	103.98	2900
3000	1165	345	334	94	560	1026	9.64	57.83	109.99	3000

TABLE 5. TRANSPORT PROPERTIES OF DEUTERIUM-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-D_2	D_2-D_2	N_2-N_2	N_2-D_2	D_2-D_2	N_2-N_2	N_2-D_2	D_2-D_2	
100	65	52	58	9	33	58	0.03	0.08	0.16	100
200	128	92	96	18	59	101	0.10	0.28	0.52	200
300	179	123	126	26	83	141	0.21	0.57	1.03	300
400	223	150	152	33	104	176	0.34	0.93	1.66	400
500	262	174	175	39	124	210	0.50	1.35	2.40	500
600	297	196	197	44	143	243	0.69	1.84	3.25	600
700	330	217	218	49	161	274	0.89	2.37	4.20	700
800	361	236	238	54	179	305	1.12	2.96	5.24	800
900	390	255	256	59	197	336	1.37	3.60	6.37	900
1000	418	273	275	63	214	365	1.63	4.29	7.58	1000
1100	445	291	292	67	230	393	1.91	5.02	8.88	1100
1200	471	308	309	71	246	421	2.21	5.80	10.25	1200
1300	496	324	325	75	262	449	2.52	6.63	11.71	1300
1400	521	340	341	80	278	476	2.85	7.49	13.24	1400
1500	544	355	357	84	293	502	3.20	8.40	14.84	1500
1600	568	371	372	89	308	528	3.56	9.35	16.51	1600
1700	591	385	387	95	324	554	3.94	10.33	18.26	1700
1800	613	400	402	101	340	579	4.33	11.36	20.07	1800
1900	635	414	416	108	356	605	4.73	12.42	21.95	1900
2000	656	428	430	115	372	630	5.15	13.53	23.90	2000
2100	677	442	444	121	387	654	5.59	14.66	25.91	2100
2200	698	455	457	126	402	678	6.03	15.84	27.98	2200
2300	718	469	471	131	416	702	6.50	17.05	30.12	2300
2400	738	482	484	136	431	726	6.97	18.29	32.32	2400
2500	758	495	497	141	445	750	7.46	19.57	34.58	2500
2600	778	507	510	146	460	774	7.96	20.89	36.90	2600
2700	797	520	522	151	474	797	8.47	22.23	39.28	2700
2800	816	532	535	155	488	821	9.00	23.61	41.72	2800
2900	835	545	547	160	502	844	9.54	25.03	44.21	2900
3000	853	557	559	165	516	868	10.09	26.47	46.77	3000

TABLE 6. TRANSPORT PROPERTIES OF DEUTERIUM-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\,m^{-1}\,K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\,s^{-1} \cdot 10^{-4}$)			Temp. (K)
	D_2-D_2	D_2-A	A-A	D_2-D_2	D_2-A	A-A	D_2-D_2	D_2-A	A-A	
100	58	55	83	58	32	7	0.16	0.08	0.02	100
200	96	99	166	101	56	12	0.52	0.29	0.09	200
300	126	134	237	141	79	17	1.03	0.60	0.19	300
400	152	164	298	176	99	22	1.66	0.98	0.32	400
500	175	190	352	210	108	26	2.40	1.42	0.47	500
600	197	215	401	243	136	30	3.25	1.93	0.65	600
700	218	238	447	274	154	34	4.20	2.50	0.85	700
800	238	259	490	305	171	37	5.24	3.12	1.06	800
900	256	280	531	336	188	40	6.37	3.80	1.30	900
1000	275	300	569	365	204	43	7.58	4.52	1.55	1000
1100	292	319	607	393	219	45	8.88	5.30	1.82	1100
1200	309	337	642	421	234	48	10.25	6.12	2.11	1200
1300	325	355	677	449	250	51	11.71	6.99	2.41	1300
1400	341	373	710	476	265	54	13.24	7.90	2.72	1400
1500	357	390	743	502	279	56	14.84	8.86	3.05	1500
1600	372	406	775	528	293	59	16.51	9.86	3.40	1600
1700	387	423	806	554	308	62	18.26	10.90	3.76	1700
1800	402	438	837	579	321	64	20.07	11.98	4.14	1800
1900	416	454	866	605	336	67	21.95	13.10	4.52	1900
2000	430	469	896	630	349	69	23.90	14.26	4.93	2000
2100	444	485	925	654	363	72	25.91	15.46	5.34	2100
2200	457	499	953	678	376	74	27.98	16.70	5.77	2200
2300	471	514	981	702	389	77	30.12	17.98	6.21	2300
2400	484	528	1008	726	402	79	32.32	19.29	6.66	2400
2500	497	542	1035	750	416	82	34.58	20.64	7.13	2500
2600	510	556	1062	774	429	84	36.90	22.03	7.61	2600
2700	522	570	1088	797	441	86	39.28	23.45	8.10	2700
2800	535	584	1114	821	455	89	41.72	24.90	8.60	2800
2900	547	597	1140	844	467	91	44.21	26.39	9.12	2900
3000	559	610	1165	868	481	94	46.77	27.92	9.64	3000

TABLE 7. TRANSPORT PROPERTIES OF ATOMIC DEUTERIUM-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-D	D-D	N_2-N_2	N_2-D	D-D	N_2-N_2	N_2-D	D-D	
100	65	41	50	9	44	79	0.03	0.12	0.27	100
200	128	73	83	18	74	130	0.10	0.42	0.90	200
300	179	98	109	26	98	170	0.21	0.85	1.79	300
400	223	120	132	33	119	205	0.34	1.39	2.88	400
500	262	139	152	39	138	237	0.50	2.03	4.18	500
600	297	157	171	44	155	267	0.69	2.75	5.65	600
700	330	173	189	49	172	295	0.89	3.56	7.29	700
800	361	189	206	54	188	322	1.12	4.44	9.10	800
900	390	204	223	59	203	347	1.37	5.40	11.06	900
1000	418	218	238	63	217	372	1.63	6.43	13.17	1000
1100	445	232	254	67	231	395	1.91	7.53	15.42	1100
1200	471	246	268	71	244	418	2.21	8.70	17.81	1200
1300	496	259	283	75	257	440	2.52	9.93	20.33	1300
1400	521	272	296	80	271	462	2.85	11.23	22.99	1400
1500	544	284	310	84	283	483	3.20	12.59	25.77	1500
1600	568	296	323	89	296	504	3.56	14.01	28.68	1600
1700	591	308	336	95	309	524	3.94	15.49	31.71	1700
1800	613	320	349	101	322	544	4.33	17.03	34.85	1800
1900	635	331	361	108	335	563	4.73	18.62	38.12	1900
2000	656	342	373	115	348	582	5.15	20.27	41.50	2000
2100	677	353	385	121	361	601	5.59	21.98	44.99	2100
2200	698	364	397	126	372	619	6.03	23.74	48.59	2200
2300	718	375	409	131	384	637	6.50	25.55	52.30	2300
2400	738	385	420	136	395	655	6.97	27.42	56.12	2400
2500	758	395	431	141	407	673	7.46	29.34	60.05	2500
2600	778	406	443	146	418	690	7.96	31.31	64.08	2600
2700	797	416	453	151	429	707	8.47	33.32	68.21	2700
2800	816	426	464	155	439	724	9.00	35.39	72.45	2800
2900	835	435	475	160	450	741	9.54	37.51	76.78	2900
3000	853	445	486	165	461	757	10.09	39.68	81.22	3000

TABLE 8. TRANSPORT PROPERTIES OF ATOMIC DEUTERIUM-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	A-A	A-D	D-D	A-A	A-D	D-D	A-A	A-D	D-D	
100	83	44	50	7	43	79	0.02	0.12	0.27	100
200	166	79	83	12	71	130	0.09	0.45	0.90	200
300	237	107	109	17	93	170	0.19	0.91	1.79	300
400	298	130	132	22	113	205	0.32	1.48	2.88	400
500	352	152	152	26	131	237	0.47	2.16	4.18	500
600	401	171	171	30	148	267	0.65	2.94	5.65	600
700	447	189	189	34	164	295	0.85	3.80	7.29	700
800	490	206	206	37	179	322	1.06	4.74	9.10	800
900	531	223	223	40	193	347	1.30	5.77	11.06	900
1000	569	238	238	43	207	372	1.55	6.87	13.17	1000
1100	607	254	254	45	220	395	1.82	8.05	15.42	1100
1200	642	268	268	48	233	418	2.11	9.30	17.81	1200
1300	677	283	283	51	245	440	2.41	10.61	20.33	1300
1400	710	296	296	54	258	462	2.72	12.00	22.99	1400
1500	743	310	310	56	269	483	3.05	13.45	25.77	1500
1600	775	323	323	59	281	504	3.40	14.97	28.68	1600
1700	806	336	336	62	294	524	3.76	16.55	31.71	1700
1800	837	349	349	64	304	544	4.14	18.19	34.85	1800
1900	866	361	361	67	315	563	4.52	19.90	38.12	1900
2000	896	373	373	69	325	582	4.93	21.66	41.50	2000
2100	925	385	385	72	336	601	5.34	23.49	44.99	2100
2200	953	397	397	74	346	619	5.77	25.37	48.59	2200
2300	981	409	409	77	357	637	6.21	27.30	52.30	2300
2400	1008	420	420	79	367	655	6.66	29.30	56.12	2400
2500	1035	431	431	82	377	673	7.13	31.35	60.05	2500
2600	1062	443	443	84	387	690	7.61	33.45	64.08	2600
2700	1088	454	453	86	396	707	8.10	35.61	68.21	2700
2800	1114	464	464	89	406	724	8.60	37.82	72.45	2800
2900	1140	475	475	91	416	741	9.12	40.08	76.78	2900
3000	1165	486	486	94	425	757	9.64	42.40	81.22	3000

TABLE 9. TRANSPORT PROPERTIES OF AMMONIA-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-NH_3	NH_3-NH_3	N_2-N_2	N_2-NH_3	NH_3-NH_3	N_2-N_2	N_2-NH_3	NH_3-NH_3	
100	65	56	52	9	7	5	0.03	0.02	0.02	100
200	128	93	70	18	16	15	0.10	0.10	0.09	200
300	179	140	103	26	25	25	0.21	0.21	0.20	300
400	223	183	138	33	35	36	0.34	0.37	0.35	400
500	262	223	174	39	45	51	0.50	0.57	0.56	500
600	297	259	209	44	55	66	0.69	0.79	0.80	600
700	330	293	244	49	65	81	0.89	1.04	1.08	700
800	361	325	276	54	76	98	1.12	1.32	1.40	800
900	390	354	308	59	87	115	1.37	1.62	1.75	900
1000	418	383	338	63	99	136	1.63	1.95	2.14	1000
1100	445	410	367	67	111	156	1.91	2.30	2.56	1100
1200	471	436	395	71	123	176	2.21	2.67	3.00	1200
1300	496	461	423	75	136	197	2.52	3.06	3.47	1300
1400	521	485	449	80	149	219	2.85	3.47	3.97	1400
1500	544	508	474	84	163	242	3.20	3.90	4.49	1500
1600	568	531	498	89	177	265	3.56	4.35	5.04	1600
1700	591	553	522	95	192	289	3.94	4.82	5.61	1700
1800	613	574	545	101	207	313	4.33	5.30	6.20	1800
1900	635	595	567	108	223	338	4.73	5.81	6.82	1900
2000	656	615	589	115	239	364	5.15	6.33	7.46	2000
2100	677	636	611	121	256	391	5.59	6.87	8.12	2100
2200	698	655	631	126	272	418	6.03	7.43	8.80	2200
2300	718	675	652	131	288	446	6.50	8.0[illegible]	9.50	2300
2400	738	694	672	136	304	472	6.97	8.59	10.22	2400
2500	758	712	692	141	322	502	7.46	9.19	10.97	2500
2600	778	731	711	146	339	532	7.96	9.81	11.73	2600
2700	797	749	730	151	356	561	8.47	10.45	12.51	2700
2800	816	767	749	156	373	591	9.00	11.10	13.32	2800
2900	835	785	767	160	390	620	9.54	11.77	14.14	2900
3000	853	802	786	165	407	650	10.09	12.45	14.98	3000

TABLE 10. TRANSPORT PROPERTIES OF AMMONIA-ARGON MIXTURES

Temp. (K)	Viscosity ($N s m^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W m^{-1} K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2 s^{-1} \cdot 10^{-4}$)			Temp. (K)
	A-A	A-NH_3	NH_3-NH_3	A-A	A-NH_3	NH_3-NH_3	A-A	A-NH_3	NH_3-NH_3	
100	83	51	39	7	6	5	0.02	0.02	0.02	100
200	166	102	70	12	13	15	0.09	0.09	0.09	200
300	237	154	103	17	21	25	0.19	0.21	0.20	300
400	298	204	138	22	29	36	0.32	0.37	0.35	400
500	352	249	174	26	38	51	0.47	0.56	0.56	500
600	401	291	209	30	48	66	0.65	0.79	0.80	600
700	447	331	244	34	57	81	0.85	1.04	1.08	700
800	490	367	276	37	67	98	1.06	1.32	1.40	800
900	531	401	308	40	78	115	1.30	1.63	1.75	900
1000	569	434	338	43	89	136	1.55	1.96	2.14	1000
1100	607	465	367	45	100	156	1.82	2.31	2.56	1100
1200	642	495	395	48	112	176	2.11	2.69	3.00	1200
1300	677	524	423	51	124	197	2.41	3.08	3.47	1300
1400	710	552	449	54	136	219	2.72	3.50	3.97	1400
1500	743	579	474	56	149	242	3.05	3.93	4.49	1500
1600	775	605	498	59	162	265	3.40	4.39	5.04	1600
1700	806	630	522	62	175	289	3.76	4.86	5.61	1700
1800	837	655	545	64	188	313	4.14	5.36	6.20	1800
1900	866	679	567	67	202	338	4.52	5.87	6.82	1900
2000	896	702	589	69	216	364	4.93	6.40	7.46	2000
2100	925	726	611	72	231	391	5.34	6.95	8.12	2100
2200	953	748	631	74	246	418	5.77	7.51	8.80	2200
2300	981	770	652	77	261	446	6.21	8.09	9.50	2300
2400	1008	792	672	79	275	472	6.66	8.69	10.22	2400
2500	1035	814	692	82	292	502	7.13	9.30	10.97	2500
2600	1062	835	711	84	308	532	7.61	9.93	11.73	2600
2700	1088	856	730	86	323	561	8.10	10.58	12.51	2700
2800	1114	876	749	89	340	591	8.60	11.24	13.32	2800
2900	1140	897	767	91	355	620	9.12	11.91	14.14	2900
3000	1165	917	786	94	372	650	9.64	12.61	14.98	3000

TABLE 11. TRANSPORT PROPERTIES OF NITROGEN TRIDEUTERIDE-HELIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{4}$)			Temp. (K)
	ND_3-ND_3	ND_3-HE	HE-HE	ND_3-ND_3	ND_3-HE	HE-HE	ND_3-ND_3	ND_3-HE	HE-HE	
100	-	-	99	-	-	73	-	-	0.29	100
200	96	130	156	17	66	115	0.10	0.42	0.92	200
300	145	174	202	28	90	152	0.24	0.85	1.84	300
400	194	212	244	40	113	187	0.42	1.38	3.01	400
500	240	246	284	54	137	220	0.65	2.01	4.41	500
600	283	277	322	68	160	252	0.92	2.72	6.04	600
700	324	306	359	83	182	281	1.22	3.52	7.88	700
800	361	334	394	98	203	308	1.56	4.39	9.92	800
900	397	360	429	114	223	332	1.92	5.34	12.20	900
1000	431	386	461	130	243	357	2.32	6.36	14.60	1000
1100	463	410	494	145	262	380	2.74	7.45	17.20	1100
1200	494	434	525	161	282	403	3.19	8.60	20.10	1200
1300	524	457	556	178	301	425	3.67	9.82	23.00	1300
1400	552	480	586	195	321	447	4.17	11.10	26.30	1400
1500	580	502	614	213	340	468	4.70	12.45	29.60	1500
1600	607	523	643	232	360	488	5.25	13.85	33.20	1600
1700	633	544	671	252	380	508	5.82	15.31	36.90	1700
1800	659	564	698	272	400	528	6.41	16.83	40.80	1800
1900	684	585	725	294	420	547	7.03	18.41	44.90	1900
2000	708	604	752	318	442	566	7.67	20.04	49.10	2000
2100	732	624	778	343	464	585	8.33	21.73	53.50	2100
2200	755	643	804	369	486	603	9.01	23.47	58.10	2200
2300	778	661	830	395	508	622	9.72	25.26	62.80	2300
2400	800	680	855	422	531	640	10.44	27.11	67.70	2400
2500	822	698	880	449	553	657	11.18	29.00	72.80	2500
2600	844	716	905	477	575	674	11.94	30.95	78.00	2600
2700	865	734	929	506	598	691	12.72	32.94	83.40	2700
2800	886	751	953	535	621	708	13.52	34.99	88.90	2800
2900	906	769	977	565	644	724	14.34	37.08	94.60	2900
3000	927	786	1001	595	668	740	15.17	39.22	101.00	3000

TABLE 12. TRANSPORT PROPERTIES OF NITROGEN TRIDEUTERIDE-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-ND_3	ND_3-ND_3	N_2-N_2	N_2-ND_3	ND_3-ND_3	N_2-N_2	N_2-ND_3	ND_3-ND_3	
100	65	-	-	9	-	-	0.03	-	-	100
200	128	111	96	18	17	17	0.10	0.10	0.10	200
300	179	164	145	26	27	28	0.21	0.23	0.24	300
400	223	211	194	33	36	40	0.34	0.39	0.42	400
500	262	254	240	39	46	54	0.50	0.59	0.65	500
600	297	293	283	44	56	68	0.69	0.81	0.92	600
700	330	328	324	49	66	83	0.89	1.06	1.22	700
800	361	362	361	54	76	98	1.12	1.34	1.56	800
900	390	393	397	59	86	114	1.37	1.64	1.92	900
1000	418	423	431	63	96	130	1.63	1.96	2.32	1000
1100	445	452	463	67	106	145	1.91	2.31	2.74	1100
1200	471	479	494	71	115	161	2.21	2.67	3.19	1200
1300	496	506	524	75	126	178	2.52	3.06	3.67	1300
1400	521	531	552	80	137	195	2.85	3.47	4.17	1400
1500	544	556	580	84	148	213	3.20	3.89	4.70	1500
1600	568	581	607	89	160	232	3.56	4.34	5.25	1600
1700	591	604	633	95	173	252	3.94	4.80	5.82	1700
1800	613	627	659	101	186	272	4.33	5.28	6.41	1800
1900	635	650	684	108	201	294	4.73	5.78	7.03	1900
2000	656	672	708	115	216	318	5.15	6.30	7.67	2000
2100	677	694	732	121	232	343	5.59	6.83	8.33	2100
2200	698	715	755	126	247	369	6.03	7.38	9.01	2200
2300	718	736	778	131	263	395	6.50	7.95	9.72	2300
2400	738	756	800	136	279	422	6.97	8.53	10.44	2400
2500	758	777	822	141	295	449	7.46	9.13	11.18	2500
2600	778	797	844	146	311	477	7.96	9.74	11.94	2600
2700	797	817	865	151	328	506	8.47	10.37	12.72	2700
2800	816	836	886	155	345	535	9.00	11.01	13.52	2800
2900	835	855	906	160	362	565	9.54	11.67	14.34	2900
3000	853	874	927	165	380	595	10.09	12.35	15.17	3000

TABLE 13. TRANSPORT PROPERTIES OF NITROGEN TRIDEUTERIDE-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	ND_3-ND_3	ND_3-A	A-A	ND_3-ND_3	ND_3-A	A-A	ND_3-ND_3	ND_3-A	A-A	
100	-	-	83	-	-	7	-	-	0.02	100
200	96	123	166	17	14	12	0.10	0.10	0.09	200
300	145	184	237	28	22	17	0.24	0.22	0.19	300
400	194	238	298	40	31	22	0.42	0.39	0.32	400
500	240	288	352	54	40	26	0.65	0.58	0.47	500
600	283	333	401	68	49	30	0.92	0.81	0.65	600
700	324	374	447	83	59	34	1.22	1.06	0.85	700
800	361	413	490	98	68	37	1.56	1.34	1.06	800
900	397	450	531	114	77	40	1.92	1.64	1.30	900
1000	431	485	569	130	86	43	2.32	1.96	1.55	1000
1100	463	518	607	145	95	45	2.74	2.31	1.82	1100
1200	494	550	642	161	104	48	3.19	2.68	2.11	1200
1300	524	581	677	178	114	51	3.67	3.07	2.41	1300
1400	552	610	710	195	124	54	4.17	3.48	2.72	1400
1500	580	639	743	213	134	56	4.70	3.91	3.05	1500
1600	607	667	775	232	145	59	5.25	4.36	3.40	1600
1700	633	694	806	252	157	62	5.82	4.82	3.76	1700
1800	659	721	837	272	168	64	6.41	5.31	4.14	1800
1900	684	747	866	294	180	67	7.03	5.81	4.52	1900
2000	708	773	896	318	193	69	7.67	6.33	4.93	2000
2100	732	798	925	343	207	72	8.33	6.87	5.34	2100
2200	755	822	953	369	221	74	9.01	7.42	5.7[illegible]	2200
2300	778	846	981	395	236	77	9.72	7.99	6.21	2300
2400	800	870	1008	422	251	79	10.44	8.58	6.66	2400
2500	822	894	1035	449	265	82	11.18	9.18	7.13	2500
2600	844	917	1062	477	281	84	11.94	9.80	7.61	2600
2700	865	939	1088	506	296	86	12.72	10.43	8.10	2700
2800	886	962	1114	535	312	89	13.52	11.08	8.60	2800
2900	906	984	1140	565	328	91	14.34	11.75	9.12	2900
3000	927	1006	1165	595	345	94	15.17	12.42	9.64	3000

TABLE 14. TRANSPORT PROPERTIES OF NITROGEN TETRAHYDRIDE-HELIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2H_4-N_2H_4	N_2H_4-HE	HE-HE	N_2H_4-N_2H_4	N_2H_4-HE	HE-HE	N_2H_4-N_2H_4	N_2H_4-HE	HE-HE	
100	43	61	99	14	43	73	0.01	0.09	0.29	100
200	76	112	156	30	72	115	0.05	0.34	0.92	200
300	111	153	202	44	98	152	0.11	0.69	1.84	300
400	149	187	244	59	123	187	0.20	1.14	3.01	400
500	187	218	284	74	147	220	0.32	1.66	4.41	500
600	225	247	322	88	170	252	0.46	2.26	6.04	600
700	263	273	359	102	191	281	0.62	2.93	7.88	700
800	300	298	394	116	211	308	0.81	3.66	9.92	800
900	336	322	429	131	231	332	1.02	4.45	12.20	900
1000	370	344	461	144	250	357	1.24	5.31	14.60	1000
1100	403	366	494	160	270	380	1.49	6.21	17.20	1100
1200	434	388	525	176	288	403	1.75	7.18	20.10	1200
1300	465	408	556	192	308	425	2.03	8.20	23.00	1300
1400	495	428	586	209	327	447	2.33	9.27	26.30	1400
1500	523	448	614	224	347	468	2.64	10.39	29.60	1500
1600	551	467	643	240	364	488	2.96	11.56	33.20	1600
1700	578	486	671	256	382	508	3.30	12.78	36.90	1700
1800	604	504	698	272	400	528	3.65	14.05	40.80	1800
1900	630	522	725	287	417	547	4.02	15.37	44.90	1900
2000	654	540	752	302	434	566	4.40	16.73	49.10	2000
2100	679	557	778	317	454	585	4.79	18.14	53.50	2100
2200	703	574	804	332	467	603	5.20	19.59	58.10	2200
2300	726	591	830	348	485	622	5.62	21.09	62.80	2300
2400	749	607	855	363	501	640	6.05	22.63	67.70	2400
2500	771	623	880	378	517	657	6.49	24.21	72.80	2500
2600	793	640	905	392	533	674	6.94	25.84	78.00	2600
2700	815	655	929	407	549	691	7.41	27.50	83.40	2700
2800	836	671	953	421	564	708	7.89	29.21	88.90	2800
2900	857	686	977	436	580	724	8.38	30.96	94.60	2900
3000	877	702	1001	450	595	740	8.88	32.75	101.00	3000

TABLE 15. TRANSPORT PROPERTIES OF NITROGEN TETRAHYDRIDE-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2H_4-N_2H_4	N_2H_4-N_2	N_2-N_2	N_2H_4-N_2H_4	N_2H_4-N_2	N_2-N_2	N_2H_4-N_2H_4	N_2H_4-N_2	N_2-N_2	
100	43	49	65	14	11	9	0.01	0.02	0.03	100
200	76	98	128	30	24	18	0.05	0.07	0.10	200
300	111	148	179	44	35	26	0.11	0.16	0.21	300
400	149	195	223	59	46	33	0.20	0.28	0.34	400
500	187	239	262	74	57	39	0.32	0.43	0.50	500
600	225	278	297	88	66	44	0.46	0.60	0.69	600
700	263	315	330	102	76	49	0.62	0.79	0.89	700
800	300	349	361	116	85	54	0.81	1.01	1.12	800
900	336	382	390	131	95	59	1.02	1.24	1.37	900
1000	370	413	418	144	103	63	1.24	1.49	1.63	1000
1100	403	442	445	160	113	67	1.49	1.75	1.91	1100
1200	434	470	471	176	123	71	1.75	2.04	2.21	1200
1300	465	497	496	192	133	75	2.03	2.34	2.52	1300
1400	495	523	521	209	144	80	2.33	2.65	2.85	1400
1500	523	549	544	224	154	84	2.64	2.98	3.20	1500
1600	551	573	568	240	164	89	2.96	3.33	3.56	1600
1700	578	597	591	256	175	95	3.30	3.69	3.94	1700
1800	604	621	613	272	186	101	3.65	4.06	4.33	1800
1900	630	644	635	287	197	108	4.02	4.45	4.73	1900
2000	654	666	656	302	208	115	4.40	4.85	5.15	2000
2100	679	688	677	317	219	121	4.79	5.26	5.59	2100
2200	703	709	698	332	229	126	5.20	5.69	6.03	2200
2300	726	730	718	348	239	131	5.62	6.13	6.50	2300
2400	749	751	738	362	249	136	6.05	6.58	6.97	2400
2500	771	771	758	378	259	141	6.49	7.04	7.46	2500
2600	793	791	778	392	269	146	6.94	7.52	7.96	2600
2700	815	811	797	407	279	151	7.41	8.01	8.47	2700
2800	836	830	816	421	287	156	7.89	8.51	9.00	2800
2900	857	849	835	436	298	160	8.38	9.02	9.54	2900
3000	877	868	853	450	307	165	8.88	9.54	10.09	3000

TABLE 16. TRANSPORT PROPERTIES OF NITROGEN TETRAHYDRIDE-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2H_4-N_2H_4	N_2H_4-A	A-A	N_2H_4-N_2H_4	N_2H_4-A	A-A	N_2H_4-N_2H_4	N_2H_4-A	A-A	
100	43	56	83	14	10	7	0.01	0.02	0.02	100
200	76	110	166	30	21	12	0.05	0.07	0.09	200
300	111	167	237	44	30	17	0.11	0.15	0.19	300
400	149	222	298	59	40	22	0.20	0.27	0.32	400
500	187	273	352	74	50	26	0.32	0.41	0.47	500
600	225	320	401	88	59	30	0.46	0.58	0.65	600
700	263	363	447	102	68	34	0.62	0.77	0.85	700
800	300	404	490	116	76	37	0.81	0.98	1.06	800
900	336	442	531	131	85	40	1.02	1.20	1.30	900
1000	370	478	569	144	93	43	1.24	1.45	1.55	1000
1100	403	513	607	160	102	45	1.49	1.71	1.82	1100
1200	434	547	642	176	112	48	1.75	1.99	2.11	1200
1300	465	579	677	192	122	51	2.03	2.28	2.41	1300
1400	495	610	710	209	131	54	2.33	2.59	2.72	1400
1500	523	640	743	224	140	56	2.64	2.92	3.05	1500
1600	551	669	775	240	149	59	2.96	3.26	3.40	1600
1700	578	697	806	256	159	62	3.30	3.61	3.76	1700
1800	604	724	837	272	168	64	3.65	3.98	4.14	1800
1900	630	751	866	287	177	67	4.02	4.36	4.52	1900
2000	654	778	896	302	185	69	4.40	4.75	4.93	2000
2100	679	803	925	317	194	72	4.79	5.16	5.34	2100
2200	703	828	953	332	203	74	5.20	5.58	5.77	2200
2300	726	853	981	348	212	77	5.62	6.01	6.21	2300
2400	749	877	1008	362	220	79	6.05	6.45	6.66	2400
2500	771	901	1035	378	230	82	6.49	6.91	7.13	2500
2600	793	925	1062	392	238	84	6.94	7.38	7.61	2600
2700	815	948	1088	407	246	86	7.41	7.86	8.10	2700
2800	836	971	1114	421	255	89	7.89	8.35	8.60	2800
2900	857	993	1140	436	263	91	8.38	8.86	9.12	2900
3000	877	1015	1165	450	272	94	8.88	9.37	9.64	3000

TABLE 17. TRANSPORT PROPERTIES OF NITROGEN TETRADEUTERIDE-HELIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2D_4-N_2D_4	N_2D_4-HE	HE-HE	N_2D_4-N_2D_4	N_2D_4-HE	HE-HE	N_2D_4-N_2D_4	N_2D_4-HE	HE-HE	
100	46	63	99	15	44	73	0.01	0.09	0.29	100
200	87	112	156	32	73	115	0.05	0.33	0.92	200
300	131	150	202	47	99	152	0.12	0.68	1.84	300
400	176	183	244	63	125	187	0.21	1.10	3.01	400
500	219	213	284	80	150	220	0.33	1.61	4.41	500
600	261	240	322	95	173	252	0.47	2.18	6.04	600
700	300	265	359	110	195	281	0.63	2.82	7.88	700
800	337	289	394	125	216	308	0.81	3.52	9.92	800
900	372	312	429	141	236	332	1.00	4.28	12.20	900
1000	405	334	462	155	256	357	1.21	5.10	14.60	1000
1100	437	355	494	172	276	380	1.44	5.97	17.20	1100
1200	467	376	525	189	296	403	1.68	6.89	20.10	1200
1300	496	396	556	207	316	425	1.93	7.87	23.00	1300
1400	524	416	586	225	336	447	2.20	8.90	26.30	1400
1500	551	435	614	241	354	468	2.48	9.98	29.60	1500
1600	578	453	643	258	373	488	2.77	11.10	33.20	1600
1700	603	471	671	276	392	508	3.07	12.28	36.90	1700
1800	628	489	698	293	410	528	3.39	13.49	40.80	1800
1900	653	506	725	308	427	547	3.72	14.76	44.90	1900
2000	677	524	752	324	445	566	4.06	16.07	49.10	2000
2100	700	540	778	341	463	585	4.41	17.42	53.50	2100
2200	723	557	804	357	480	603	4.78	18.81	58.10	2200
2300	745	573	830	374	498	622	5.15	20.25	62.80	2300
2400	767	589	855	390	515	640	5.54	21.73	67.70	2400
2500	788	605	880	406	531	657	5.94	23.25	72.80	2500
2600	809	621	905	422	548	674	6.34	24.81	78.00	2600
2700	830	636	929	438	564	691	6.76	26.41	83.40	2700
2800	850	651	953	454	581	708	7.19	28.05	88.90	2800
2900	870	666	977	469	596	724	7.62	29.73	94.60	2900
3000	890	681	1001	484	612	740	8.07	31.45	101.00	3000

TABLE 18. TRANSPORT PROPERTIES OF NITROGEN TETRADEUTERIDE-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2D_4-N_2D_4	N_2D_4-N_2	N_2-N_2	N_2D_4-N_2D_4	N_2D_4-N_2	N_2-N_2	N_2D_4-N_2D_4	N_2D_4-N_2	N_2-N_2	
100	46	53	65	15	12	9	0.01	0.02	0.03	100
200	87	107	128	32	25	18	0.05	0.07	0.10	200
300	131	159	179	47	36	26	0.12	0.16	0.21	300
400	176	206	223	63	48	33	0.21	0.28	0.34	400
500	219	249	262	80	59	39	0.33	0.43	0.50	500
600	261	288	297	95	69	44	0.47	0.59	0.69	600
700	300	324	330	110	79	49	0.63	0.77	0.89	700
800	337	357	361	125	89	54	0.81	0.98	1.12	800
900	372	389	390	141	100	59	1.00	1.20	1.37	900
1000	405	419	418	155	109	63	1.21	1.44	1.63	1000
1100	437	448	445	172	119	67	1.44	1.69	1.91	1100
1200	467	475	471	189	130	71	1.68	1.96	2.21	1200
1300	496	502	496	207	141	75	1.93	2.24	2.52	1300
1400	524	527	521	225	152	80	2.20	2.54	2.85	1400
1500	551	552	544	241	162	84	2.48	2.86	3.20	1500
1600	578	576	568	258	173	89	2.77	3.19	3.56	1600
1700	603	600	591	276	185	95	3.07	3.53	3.94	1700
1800	628	623	613	293	197	101	3.39	3.88	4.33	1800
1900	653	645	635	308	208	108	3.72	4.25	4.73	1900
2000	677	667	656	324	219	115	4.06	4.63	5.15	2000
2100	700	689	677	341	231	121	4.41	5.02	5.59	2100
2200	723	710	698	357	241	126	4.78	5.42	6.03	2200
2300	745	731	718	374	252	131	5.15	5.84	6.50	2300
2400	767	752	738	390	263	136	5.54	6.27	6.97	2400
2500	788	772	758	406	273	141	5.94	6.71	7.46	2500
2600	809	792	778	422	284	146	6.34	7.16	7.96	2600
2700	830	811	797	438	294	151	6.76	7.63	8.47	2700
2800	850	831	816	454	304	155	7.19	8.10	9.00	2800
2900	870	850	835	469	314	160	7.62	8.58	9.54	2900
3000	890	869	853	484	324	165	8.07	9.08	10.09	3000

TABLE 19. TRANSPORT PROPERTIES OF NITROGEN TETRADEUTERIDE-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2D_4-N_2D_4	N_2D_4-A	A-A	N_2D_4-N_2D_4	N_2D_4-A	A-A	N_2D_4-N_2D_4	N_2D_4-A	A-A	
100	46	60	83	15	11	7	0.01	0.02	0.02	100
200	87	120	166	32	22	12	0.05	0.07	0.09	200
300	131	181	237	47	32	17	0.12	0.16	0.19	300
400	176	237	298	63	42	22	0.21	0.27	0.32	400
500	219	287	352	80	52	26	0.33	0.41	0.47	500
600	261	333	401	95	62	30	0.47	0.57	0.65	600
700	300	375	447	110	72	34	0.63	0.75	0.85	700
800	337	415	490	125	81	37	0.81	0.94	1.06	800
900	372	453	531	141	90	40	1.00	1.16	1.30	900
1000	405	488	569	155	99	43	1.21	1.39	1.55	1000
1100	437	522	607	172	108	45	1.44	1.64	1.82	1100
1200	467	555	642	189	118	48	1.68	1.90	2.11	1200
1300	496	586	677	207	129	51	1.93	2.18	2.41	1300
1400	524	617	710	225	139	54	2.20	2.47	2.72	1400
1500	551	646	743	241	148	56	2.48	2.78	3.05	1500
1600	578	675	775	258	158	59	2.77	3.10	3.40	1600
1700	603	703	806	276	168	62	3.07	3.43	3.76	1700
1800	628	730	837	293	178	64	3.39	3.78	4.14	1800
1900	653	756	866	308	187	67	3.72	4.13	4.52	1900
2000	677	782	896	324	196	69	4.06	4.51	4.93	2000
2100	700	808	925	341	206	72	4.41	4.89	5.34	2100
2200	723	833	953	357	215	74	4.78	5.28	5.77	2200
2300	745	857	981	374	226	77	5.15	5.69	6.21	2300
2400	767	881	1008	390	235	79	5.54	6.11	6.66	2400
2500	788	905	1035	406	244	82	5.94	6.54	7.13	2500
2600	809	928	1062	422	253	84	6.34	6.98	7.61	2600
2700	830	952	1088	438	263	86	6.76	7.43	8.10	2700
2800	850	974	1114	454	274	89	7.19	7.89	8.60	2800
2900	870	997	1140	469	285	91	7.62	8.37	9.12	2900
3000	890	1019	1165	484	296	94	8.07	8.85	9.64	3000

TABLE 20. TRANSPORT PROPERTIES OF FLUORINE-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-F_2	F_2-F_2	N_2-N_2	N_2-F_2	F_2-F_2	N_2-N_2	N_2-F_2	F_2-F_2	
100	65	75	86	73	41	10	0.03	0.03	0.02	100
200	128	145	168	142	81	19	0.10	0.10	0.10	200
300	179	204	236	199	113	28	0.21	0.20	0.20	300
400	223	254	293	248	142	37	0.34	0.34	0.33	400
500	262	298	344	291	168	45	0.50	0.50	0.49	500
600	297	339	391	331	191	52	0.69	0.68	0.67	600
700	330	376	434	367	213	59	0.89	0.80	0.87	700
800	361	411	475	402	233	65	1.12	1.11	1.09	800
900	390	444	513	434	252	71	1.37	1.35	1.33	900
1000	418	476	550	465	271	77	1.63	1.61	1.58	1000
1100	445	507	586	495	288	82	1.91	1.89	1.85	1100
1200	471	537	620	524	306	88	2.21	2.19	2.14	1200
1300	496	565	653	552	322	93	2.52	2.50	2.45	1300
1400	521	593	685	579	338	97	2.85	2.82	2.77	1400
1500	544	620	716	606	354	102	3.20	3.17	3.10	1500
1600	568	647	747	632	369	107	3.56	3.52	3.45	1600
1700	591	673	777	657	384	112	3.94	3.90	3.82	1700
1800	613	698	806	682	399	116	4.33	4.28	4.20	1800
1900	635	723	835	706	413	121	4.73	4.69	4.59	1900
2000	656	748	863	730	427	125	5.15	5.10	5.00	2000
2100	677	772	891	754	442	130	5.59	5.53	5.42	2100
2200	698	795	918	777	455	134	6.03	5.97	5.86	2200
2300	718	818	945	799	468	138	6.50	6.43	6.30	2300
2400	738	841	972	822	482	143	6.97	6.90	6.76	2400
2500	758	864	998	844	495	147	7.46	7.38	7.24	2500
2600	778	886	1023	866	508	151	7.96	7.88	7.72	2600
2700	797	908	1049	887	521	155	8.47	8.39	8.22	2700
2800	816	930	1074	908	533	159	9.00	8.91	8.73	2800
2900	835	951	1098	929	546	163	9.54	9.44	9.25	2900
3000	853	972	1123	950	558	167	10.09	9.98	9.79	3000

TABLE 21. TRANSPORT PROPERTIES OF FLUORINE-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	F_2-F_2	F_2-A	A-A	F_2-F_2	F_2-A	A-A	F_2-F_2	F_2-A	A-A	
100	86	84	83	10	8	7	0.02	0.02	0.02	100
200	168	167	166	19	15	12	0.10	0.09	0.09	200
300	236	236	237	28	22	17	0.20	0.20	0.19	300
400	293	296	298	37	29	22	0.33	0.33	0.32	400
500	344	348	352	45	35	26	0.49	0.48	0.47	500
600	391	396	401	52	41	30	0.67	0.66	0.65	600
700	434	441	447	59	46	34	0.87	0.86	0.85	700
800	475	483	490	65	51	37	1.09	1.08	1.06	800
900	513	522	531	71	55	40	1.33	1.31	1.30	900
1000	550	560	569	77	60	43	1.58	1.57	1.55	1000
1100	586	596	607	82	64	45	1.85	1.84	1.82	1100
1200	620	631	642	88	68	48	2.14	2.12	2.11	1200
1300	653	665	677	93	72	51	2.45	2.43	2.41	1300
1400	685	697	710	97	75	54	2.77	2.75	2.72	1400
1500	716	729	743	102	79	56	3.10	3.08	3.05	1500
1600	747	761	775	107	83	59	3.45	3.43	3.40	1600
1700	777	791	806	112	87	62	3.82	3.79	3.76	1700
1800	806	821	837	116	90	64	4.20	4.17	4.14	1800
1900	835	850	866	121	94	67	4.59	4.56	4.52	1900
2000	863	879	896	125	97	69	5.00	4.96	4.93	2000
2100	891	907	925	130	101	72	5.42	5.38	5.34	2100
2200	918	935	953	134	104	74	5.86	5.81	5.77	2200
2300	945	963	981	138	107	77	6.30	6.26	6.21	2300
2400	972	989	1008	143	111	79	6.76	6.71	6.66	2400
2500	998	1016	1035	147	114	82	7.24	7.18	7.13	2500
2600	1023	1042	1062	151	117	84	7.72	7.66	7.61	2600
2700	1049	1068	1088	155	120	86	8.22	8.16	8.10	2700
2800	1074	1093	1114	159	124	89	8.73	8.67	8.60	2800
2900	1098	1118	1140	163	127	91	9.25	9.18	9.12	2900
3000	1123	1143	1165	167	130	94	9.79	9.71	9.64	3000

TABLE 22. TRANSPORT PROPERTIES OF FLUORINE-AMMONIA MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-4}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	F_2-F_2	F_2-NH_3	NH_3-NH_3	F_2-F_2	F_2-NH_3	NH_3-NH_3	F_2-F_2	F_2-NH_3	NH_3-NH_3	
100	86	52	52	10	8	5	0.02	0.02	0.02	100
200	168	104	70	19	17	15	0.10	0.10	0.09	200
300	236	157	103	28	27	25	0.20	0.22	0.20	300
400	293	206	138	37	37	36	0.33	0.38	0.35	400
500	344	251	174	45	48	51	0.49	0.58	0.56	500
600	391	292	209	52	59	66	0.67	0.80	0.80	600
700	434	330	244	59	70	81	0.87	1.06	1.08	700
800	475	366	276	65	81	98	1.09	1.34	1.40	800
900	513	399	308	71	93	115	1.33	1.65	1.75	900
1000	550	431	338	77	106	136	1.58	1.98	2.14	1000
1100	586	461	367	82	119	156	1.85	2.33	2.56	1100
1200	620	491	395	88	132	176	2.14	2.70	3.00	1200
1300	653	519	423	93	145	197	2.45	3.10	3.47	1300
1400	685	546	449	97	158	219	2.77	3.52	3.97	1400
1500	716	572	474	102	172	242	3.10	3.95	4.49	1500
1600	747	597	498	107	186	265	3.45	4.41	5.04	1600
1700	777	622	522	112	200	289	3.82	4.89	5.61	1700
1800	806	646	545	116	215	313	4.20	5.38	6.20	1800
1900	835	670	567	121	229	338	4.59	5.89	6.82	1900
2000	863	693	589	125	245	364	5.00	6.42	7.46	2000
2100	891	716	611	130	261	391	5.42	6.97	8.12	2100
2200	918	738	631	134	276	418	5.86	7.53	8.80	2200
2300	945	760	652	138	292	446	6.30	8.11	9.50	2300
2400	972	781	672	143	308	472	6.76	8.71	10.22	2400
2500	998	802	692	147	325	502	7.24	9.32	10.97	2500
2600	1023	823	711	151	341	532	7.72	9.95	11.73	2600
2700	1049	843	730	155	358	561	8.22	10.60	12.51	2700
2800	1074	864	749	159	375	591	8.73	11.26	13.32	2800
2900	1098	884	767	163	391	620	9.25	11.94	14.14	2900
3000	1123	903	786	167	409	650	9.79	12.63	14.98	3000

TABLE 23. TRANSPORT PROPERTIES OF FLUORINE-NITROGEN TRIDEUTERIDE MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	ND_3-ND_3	F_2-ND_3	F_2-F_2	ND_3-ND_3	F_2-ND_3	F_2-F_2	ND_3-ND_3	F_2-ND_3	F_2-F_2	
100	-	-	86	-	-	10	-	-	0.02	100
200	96	126	168	17	18	19	0.10	0.10	0.10	200
300	145	186	236	28	28	28	0.24	0.23	0.20	300
400	194	240	293	40	38	37	0.42	0.39	0.33	400
500	240	288	344	54	49	45	0.65	0.59	0.49	500
600	283	331	391	68	60	52	0.92	0.82	0.67	600
700	324	372	434	83	71	59	1.22	1.07	0.87	700
800	361	410	475	98	81	65	1.56	1.35	1.09	800
900	397	445	513	114	92	71	1.92	1.65	1.33	900
1000	431	479	550	130	103	77	2.32	1.98	1.58	1000
1100	463	512	586	145	113	82	2.74	2.33	1.85	1100
1200	494	543	620	161	124	88	3.19	2.70	2.14	1200
1300	524	573	653	178	135	93	3.67	3.09	2.45	1300
1400	552	602	685	195	146	97	4.17	3.50	2.77	1400
1500	580	630	716	213	157	102	4.70	3.93	3.10	1500
1600	607	657	747	232	169	107	5.25	4.38	3.45	1600
1700	633	684	777	252	182	112	5.82	4.84	3.82	1700
1800	659	710	806	272	194	116	6.41	5.33	4.20	1800
1900	684	736	835	294	207	121	7.03	5.83	4.59	1900
2000	708	761	863	318	221	125	7.67	6.35	5.00	2000
2100	732	785	891	343	236	130	8.33	6.89	5.42	2100
2200	755	810	918	369	251	134	9.01	7.44	5.86	2200
2300	778	833	945	395	266	138	9.72	8.01	6.30	2300
2400	800	857	972	422	282	143	10.44	8.60	6.76	2400
2500	822	880	998	449	298	147	11.18	9.20	7.24	2500
2600	844	902	1023	477	314	151	11.94	9.82	7.72	2600
2700	865	925	1049	506	330	155	12.72	10.46	8.22	2700
2800	886	947	1074	535	347	159	13.52	11.11	8.73	2800
2900	906	969	1098	565	364	163	14.34	11.77	9.25	2900
3000	927	990	1123	595	381	167	15.17	12.45	9.79	3000

TABLE 24. TRANSPORT PROPERTIES OF FLUORINE-NITROGEN TETRAHYDRIDE MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2H_4-N_2H_4	N_2H_4-F_2	F_2-F_2	N_2H_4-N_2H_4	N_2H_4-F_2	F_2-F_2	N_2H_4-N_2H_4	N_2H_4-F_2	F_2-F_2	
100	43	57	86	14	12	10	0.01	0.02	0.02	100
200	76	113	168	30	25	19	0.05	0.07	0.10	200
300	111	171	236	44	36	28	0.11	0.16	0.20	300
400	149	225	293	59	48	37	0.20	0.28	0.33	400
500	187	274	344	74	59	45	0.32	0.42	0.49	500
600	225	320	391	88	70	52	0.46	0.59	0.67	600
700	263	362	434	102	80	59	0.62	0.79	0.87	700
800	300	402	475	116	90	65	0.81	1.00	1.09	800
900	336	439	513	131	101	71	1.02	1.22	1.33	900
1000	370	474	550	144	111	77	1.24	1.47	1.58	1000
1100	403	508	586	160	121	82	1.49	1.73	1.85	1100
1200	434	540	620	176	132	88	1.75	2.01	2.14	1200
1300	465	572	653	192	142	93	2.03	2.31	2.45	1300
1400	495	602	685	209	153	97	2.33	2.62	2.77	1400
1500	523	631	716	224	163	102	2.64	2.95	3.10	1500
1600	551	659	747	240	173	107	2.96	3.29	3.45	1600
1700	578	687	777	256	184	112	3.30	3.64	3.82	1700
1800	604	713	806	272	194	116	3.65	4.01	4.20	1800
1900	630	740	835	287	204	121	4.02	4.40	4.59	1900
2000	654	765	863	302	213	125	4.40	4.79	5.00	2000
2100	679	790	891	317	223	130	4.79	5.20	5.42	2100
2200	703	815	918	332	233	134	5.20	5.62	5.86	2200
2300	726	839	945	348	243	138	5.62	6.06	6.30	2300
2400	749	863	972	362	252	143	6.05	6.50	6.76	2400
2500	771	886	998	378	262	147	6.49	6.96	7.24	2500
2600	793	909	1023	392	271	151	6.94	7.43	7.72	2600
2700	815	932	1049	407	281	155	7.41	7.91	8.22	2700
2800	836	954	1074	421	290	159	7.89	8.41	8.73	2800
2900	857	976	1098	436	299	163	8.38	8.91	9.25	2900
3000	877	998	1123	450	308	167	8.88	9.43	9.79	3000

TABLE 25. TRANSPORT PROPERTIES OF FLUORINE-NITROGEN TETRADEUTERIDE MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	F_2-F_2	F_2-N_2D_4	N_2D_4-N_2D_4	F_2-F_2	F_2-N_2D_4	N_2D_4-N_2D_4	F_2-F_2	F_2-N_2D_4	N_2D_4-N_2D_4	
100	86	59	44	10	12	15	0.02	0.02	0.01	100
200	168	119	81	19	25	32	0.10	0.07	0.05	200
300	236	178	121	28	37	47	0.20	0.16	0.11	300
400	293	232	163	37	50	63	0.33	0.27	0.20	400
500	344	281	205	45	62	80	0.49	0.41	0.31	500
600	391	325	245	52	73	95	0.67	0.57	0.44	600
700	434	366	283	59	84	110	0.87	0.75	0.59	700
800	475	405	320	65	95	125	1.09	0.94	0.77	800
900	513	441	354	71	106	141	1.33	1.16	0.95	900
1000	550	476	387	77	116	155	1.58	1.39	1.16	1000
1100	586	509	419	82	127	172	1.85	1.64	1.38	1100
1200	620	540	449	88	138	189	2.14	1.90	1.61	1200
1300	653	571	478	93	150	207	2.45	2.17	1.86	1300
1400	685	600	506	97	161	225	2.77	2.47	2.12	1400
1500	716	629	533	102	171	241	3.10	2.77	2.39	1500
1600	747	657	560	107	182	258	3.45	3.09	2.68	1600
1700	777	684	585	112	194	276	3.82	3.42	2.98	1700
1800	806	710	610	116	204	293	4.20	3.76	3.29	1800
1900	835	736	634	121	214	308	4.59	4.12	3.61	1900
2000	863	761	658	125	224	324	5.00	4.49	3.94	2000
2100	891	785	681	130	235	341	5.42	4.87	4.29	2100
2200	918	810	703	134	245	357	5.86	5.27	4.64	2200
2300	945	834	726	138	256	374	6.30	5.67	5.01	2300
2400	972	857	747	143	266	390	6.76	6.09	5.39	2400
2500	998	880	769	147	276	406	7.24	6.52	5.78	2500
2600	1023	903	790	151	286	422	7.72	6.95	6.17	2600
2700	1049	925	810	155	296	438	8.22	7.40	6.58	2700
2800	1074	947	830	159	306	454	8.73	7.87	7.00	2800
2900	1098	969	850	163	316	469	9.25	8.34	7.43	2900
3000	1123	991	870	167	325	484	9.79	8.82	7.87	3000

TABLE 26. TRANSPORT PROPERTIES OF ATOMIC FLUORINE-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-F	F-F	N_2-N_2	N_2-F	F-F	N_2-N_2	N_2-F	F-F	
100	65	70	78	9	11	13	0.03	0.03	0.04	100
200	128	137	152	18	22	27	0.10	0.13	0.17	200
300	179	192	213	26	32	38	0.21	0.27	0.36	300
400	223	239	265	33	40	47	0.34	0.45	0.60	400
500	262	280	311	39	46	54	0.50	0.67	0.88	500
600	297	318	354	44	52	61	0.69	0.91	1.21	600
700	330	354	393	49	58	67	0.89	1.19	1.57	700
800	361	387	430	54	63	73	1.12	1.49	1.97	800
900	390	418	464	59	69	79	1.37	1.81	2.40	900
1000	418	448	498	63	73	84	1.63	2.16	2.86	1000
1100	445	477	530	67	78	89	1.91	2.53	3.35	1100
1200	471	505	561	71	82	94	2.21	2.93	3.88	1200
1300	496	532	591	76	87	99	2.52	3.34	4.43	1300
1400	521	558	620	80	91	103	2.85	3.78	5.01	1400
1500	544	584	648	84	96	108	3.20	4.24	5.61	1500
1600	568	609	676	89	100	112	3.56	4.72	6.25	1600
1700	591	633	703	95	106	117	3.94	5.22	6.91	1700
1800	613	657	729	101	111	121	4.33	5.74	7.60	1800
1900	635	680	756	108	117	126	4.73	6.28	8.31	1900
2000	656	703	781	115	122	130	5.15	6.83	9.05	2000
2100	677	726	806	121	127	134	5.59	7.41	9.81	2100
2200	698	748	831	126	132	138	6.03	8.00	10.59	2200
2300	718	770	855	131	136	142	6.50	8.61	11.40	2300
2400	738	791	879	136	141	146	6.97	9.24	12.23	2400
2500	758	813	903	141	145	150	7.46	9.89	13.09	2500
2600	778	834	926	146	149	153	7.96	10.55	13.97	2600
2700	797	854	949	151	154	157	8.47	11.23	14.87	2700
2800	816	874	971	155	158	161	9.00	11.93	15.79	2800
2900	835	895	994	160	162	165	9.54	12.65	16.74	2900
3000	853	914	1016	165	166	168	10.09	13.38	17.70	3000

TABLE 27. TRANSPORT PROPERTIES OF ATOMIC FLUORINE-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\,m^{-1}\,K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\,s^{-1} \cdot 10^{-4}$)			Temp. (K)
	A-A	A-F	F-F	A-A	A-F	F-F	A-A	A-F	F-F	
100	83	77	78	7	10	13	0.02	0.03	0.04	100
200	166	153	152	12	19	27	0.09	0.13	0.17	200
300	237	217	213	17	27	38	0.19	0.27	0.36	300
400	298	271	265	22	34	47	0.32	0.45	0.60	400
500	352	319	311	26	40	54	0.47	0.67	0.88	500
600	401	364	354	30	45	61	0.65	0.92	1.21	600
700	447	404	393	34	50	67	0.85	1.19	1.57	700
800	490	443	430	37	55	73	1.06	1.49	1.97	800
900	531	479	464	40	59	79	1.30	1.82	2.40	900
1000	569	513	498	43	63	84	1.55	2.17	2.86	1000
1100	607	547	530	45	67	89	1.82	2.55	3.35	1100
1200	642	579	561	48	71	94	2.11	2.95	3.88	1200
1300	677	610	591	51	75	99	2.41	3.37	4.43	1300
1400	710	640	620	54	78	103	2.72	3.81	5.01	1400
1500	743	669	648	56	82	108	3.05	4.27	5.61	1500
1600	775	698	767	59	85	112	3.40	4.76	6.25	1600
1700	806	726	703	62	89	117	3.76	5.26	6.91	1700
1800	837	753	729	64	92	121	4.14	5.78	7.60	1800
1900	866	780	756	67	96	126	4.52	6.32	8.31	1900
2000	896	807	781	69	99	130	4.93	6.89	9.05	2000
2100	925	832	806	72	103	134	5.34	7.47	9.81	2100
2200	953	858	831	74	106	138	5.77	8.06	10.59	2200
2300	981	883	855	77	109	142	6.21	8.68	11.40	2300
2400	1008	908	879	79	112	146	6.66	9.31	12.23	2400
2500	1035	932	903	82	116	150	7.13	9.97	13.09	2500
2600	1062	956	926	84	118	153	7.61	10.63	13.97	2600
2700	1088	980	949	86	121	157	8.10	11.32	14.87	2700
2800	1114	1003	971	89	125	161	8.60	12.02	15.79	2800
2900	1140	1026	994	91	128	165	9.12	12.74	16.74	2900
3000	1165	1049	1016	94	131	168	9.64	13.48	17.70	3000

TABLE 28. TRANSPORT PROPERTIES OF ATOMIC FLUORINE-AMMONIA MIXTURES

Temp. (K)	Viscosity ($N s m^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W m^{-1} K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2 s^{-1} \cdot 10^{-4}$)			Temp. (K)
	F-F	$F-NH_3$	NH_3-NH_3	F-F	$F-NH_3$	NH_3-NH_3	F-F	$F-NH_3$	NH_3-NH_3	
100	78	52	52	13	9	5	0.04	0.03	0.02	100
200	152	104	70	25	20	15	0.17	0.13	0.09	200
300	213	156	103	35	30	25	0.36	0.28	0.20	300
400	265	205	138	43	40	36	0.60	0.49	0.35	400
500	311	250	174	51	51	51	0.88	0.75	0.56	500
600	354	290	209	58	60	66	1.21	1.04	0.80	600
700	393	328	244	64	73	81	1.57	1.38	1.08	700
800	430	363	276	71	84	98	1.97	1.74	1.40	800
900	464	397	308	76	96	115	2.40	2.14	1.75	900
1000	498	428	338	82	109	136	2.86	2.57	2.14	1000
1100	530	458	367	87	122	156	3.35	3.03	2.56	1100
1200	561	487	395	92	134	176	3.88	3.52	3.00	1200
1300	591	515	423	97	147	197	4.43	4.03	3.47	1300
1400	620	542	449	102	160	219	5.01	4.58	3.97	1400
1500	648	568	474	106	174	242	5.61	5.15	4.49	1500
1600	676	594	498	111	188	265	6.25	5.74	5.04	1600
1700	703	618	522	115	202	289	6.91	6.36	5.61	1700
1800	729	642	545	120	217	313	7.60	7.00	6.20	1800
1900	756	666	567	124	231	338	8.31	7.67	6.82	1900
2000	781	689	589	128	246	364	9.05	8.36	7.46	2000
2100	806	711	611	132	262	391	9.81	9.07	8.12	2100
2200	831	733	631	136	277	418	10.59	9.80	8.80	2200
2300	855	755	652	140	293	446	11.40	10.56	9.50	2300
2400	879	776	672	144	308	472	12.23	11.33	10.22	2400
2500	903	797	692	148	325	502	13.09	12.13	10.97	2500
2600	926	818	711	152	342	532	13.97	12.95	11.73	2600
2700	949	838	730	156	359	561	14.87	13.79	12.51	2700
2800	971	858	749	159	375	591	15.79	14.65	13.32	2800
2900	994	878	767	163	391	620	16.74	15.53	14.14	2900
3000	1016	897	786	167	408	650	17.70	16.43	14.98	3000

TABLE 29. TRANSPORT PROPERTIES OF ATOMIC FLUORINE-NITROGEN TRIDEUTERIDE MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\,m^{-1}\,K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\,s^{-1} \cdot 10^{-4}$)			Temp. (K)
	ND_3-ND_3	ND_3-F	F-F	ND_3-ND_3	ND_3-F	F-F	ND_3-ND_3	ND_3-F	F-F	
100	-	-	78	-	-	13	-	-	0.04	100
200	96	123	152	17	22	27	0.10	0.14	0.17	200
300	145	182	213	28	33	38	0.24	0.30	0.36	300
400	194	235	265	40	43	47	0.42	0.52	0.60	400
500	240	282	311	54	54	54	0.65	0.78	0.88	500
600	283	325	354	68	64	61	0.92	1.08	1.21	600
700	324	365	393	83	75	67	1.22	1.41	1.57	700
800	361	402	430	98	85	73	1.56	1.78	1.97	800
900	397	437	464	114	96	79	1.92	2.18	2.40	900
1000	431	470	498	130	107	84	2.32	2.61	2.86	1000
1100	463	502	530	145	117	89	2.74	3.07	3.35	1100
1200	494	532	561	161	127	94	3.19	3.55	3.88	1200
1300	524	562	591	178	138	99	3.67	4.07	4.43	1300
1400	552	590	620	195	149	103	4.17	4.61	5.01	1400
1500	580	618	648	213	160	108	4.70	5.18	5.61	1500
1600	607	645	676	232	172	112	5.25	5.77	6.24	1600
1700	633	671	703	252	184	117	5.82	6.38	6.91	1700
1800	659	696	729	272	196	121	6.41	7.02	7.60	1800
1900	684	721	756	294	210	126	7.03	7.69	8.31	1900
2000	708	746	781	318	224	130	7.67	8.37	9.05	2000
2100	732	770	806	343	238	134	8.33	9.08	9.81	2100
2200	755	794	831	369	253	138	9.01	9.81	10.59	2200
2300	778	817	855	395	268	142	9.72	10.57	11.40	2300
2400	800	840	879	422	284	146	10.44	11.34	12.23	2400
2500	822	862	903	449	299	150	11.18	12.13	13.09	2500
2600	844	885	926	477	315	153	11.94	12.95	13.97	2600
2700	865	907	949	506	331	157	12.72	13.79	14.87	2700
2800	886	928	971	535	347	161	13.52	14.64	15.79	2800
2900	906	950	994	565	365	165	14.34	15.52	16.74	2900
3000	927	971	1016	595	386	168	15.17	16.42	17.70	3000

TABLE 30. TRANSPORT PROPERTIES OF ATOMIC FLUORINE-NITROGEN TETRAHYDRIDE MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2H_4-N_2H_4	N_2H_4-F	F-F	N_2H_4-N_2H_4	N_2H_4-F	F-F	N_2H_4-N_2H_4	N_2H_4-F	F-F	
100	43	53	78	14	13	13	0.01	0.02	0.04	100
200	76	106	152	30	28	27	0.05	0.10	0.17	200
300	111	160	213	44	41	38	0.11	0.22	0.36	300
400	149	211	265	59	52	47	0.20	0.38	0.60	400
500	187	257	311	74	64	54	0.32	0.58	0.88	500
600	225	300	354	88	74	61	0.46	0.81	1.21	600
700	263	339	393	102	84	67	0.62	1.07	1.57	700
800	300	376	430	116	94	73	0.81	1.36	1.97	800
900	336	411	464	131	105	79	1.02	1.67	2.40	900
1000	370	444	498	144	114	84	1.24	2.01	2.86	1000
1100	403	476	530	160	124	89	1.49	2.37	3.35	1100
1200	434	506	561	176	135	94	1.75	2.75	3.88	1200
1300	465	535	591	192	145	99	2.03	3.15	4.43	1300
1400	495	564	620	209	156	103	2.33	3.58	5.01	1400
1500	523	591	648	224	166	108	2.64	4.02	5.61	1500
1600	551	617	676	240	176	112	2.96	4.49	6.25	1600
1700	578	643	703	256	186	117	3.30	4.97	6.91	1700
1800	604	668	729	272	196	121	3.65	5.48	7.60	1800
1900	630	693	756	287	206	126	4.02	6.00	8.31	1900
2000	654	717	781	302	216	130	4.40	6.54	9.05	2000
2100	679	740	806	317	225	134	4.79	7.10	9.81	2100
2200	703	763	831	332	235	138	5.20	7.67	10.59	2200
2300	726	786	855	348	245	142	5.62	8.27	11.40	2300
2400	749	808	879	362	254	146	6.05	8.88	12.23	2400
2500	771	830	903	378	264	150	6.49	9.50	13.09	2500
2600	793	851	926	392	272	153	6.94	10.14	13.97	2600
2700	815	873	949	407	282	157	7.41	10.80	14.87	2700
2800	836	893	971	421	291	161	7.89	11.48	15.79	2800
2900	857	914	994	436	300	165	8.38	12.17	16.74	2900
3000	877	934	1016	450	309	168	8.88	12.87	17.70	3000

TABLE 31. TRANSPORT PROPERTIES OF ATOMIC FLUORINE-NITROGEN TETRADEUTERIDE MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-6}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	F-F	F-N_2D_4	N_2D_4-N_2D_4	F-F	F-N_2D_4	N_2D_4-N_2D_4	F-F	F-N_2D_4	N_2D_4-N_2D_4	
100	78	54	44	13	14	15	0.04	0.02	0.01	100
200	152	110	81	27	29	32	0.17	0.10	0.05	200
300	213	164	121	38	42	47	0.36	0.21	0.11	300
400	265	214	163	47	55	63	0.60	0.37	0.20	400
500	311	259	205	54	67	80	0.88	0.56	0.31	500
600	354	300	245	61	78	95	1.21	0.78	0.44	600
700	393	338	283	67	88	110	1.57	1.03	0.59	700
800	430	374	320	73	99	125	1.97	1.30	0.77	800
900	464	408	354	79	110	141	2.40	1.59	0.95	900
1000	498	440	387	84	120	155	2.86	1.91	1.16	1000
1100	530	470	419	89	130	172	3.35	2.25	1.38	1100
1200	561	499	449	94	141	189	3.88	2.61	1.61	1200
1300	591	527	478	99	153	207	4.43	2.99	1.86	1300
1400	620	555	506	103	164	225	5.01	3.39	2.12	1400
1500	648	581	533	108	174	241	5.61	3.80	2.39	1500
1600	676	607	560	112	185	258	6.25	4.24	2.68	1600
1700	703	631	585	117	196	276	6.91	4.70	2.98	1700
1800	729	656	610	121	207	293	7.60	5.17	3.29	1800
1900	756	680	634	126	217	308	8.31	5.66	3.61	1900
2000	781	703	658	130	227	324	9.05	6.17	3.94	2000
2100	806	726	681	134	237	341	9.81	6.69	4.29	2100
2200	831	748	703	138	247	357	10.59	7.23	4.64	2200
2300	855	770	726	142	258	374	11.40	7.79	5.01	2300
2400	879	792	747	146	268	390	12.23	8.36	5.39	2400
2500	903	813	769	150	278	406	13.09	8.95	5.78	2500
2600	926	834	790	153	287	422	13.97	9.55	6.17	2600
2700	949	855	810	157	297	438	14.87	10.17	6.58	2700
2800	971	875	830	161	307	454	15.79	10.80	7.00	2800
2900	994	895	850	165	317	469	16.74	11.45	7.43	2900
3000	1016	915	870	168	326	484	17.70	12.11	7.87	3000

TABLE 32. TRANSPORT PROPERTIES OF NITROGEN TRIFLUORIDE-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-NF_3	NF_3-NF_3	N_2-N_2	N_2-NF_3	NF_3-NF_3	N_2-N_2	N_2-NF_3	NF_3-NF_3	
100	65	59	61	9	6	4	0.03	0.02	0.01	100
200	128	119	124	18	14	10	0.10	0.06	0.04	200
300	179	171	181	26	22	19	0.21	0.14	0.03	300
400	223	215	232	33	30	28	0.34	0.23	0.14	400
500	262	255	277	39	37	36	0.50	0.34	0.21	500
600	297	291	318	44	44	44	0.69	0.47	0.29	600
700	330	324	356	49	50	51	0.89	0.61	0.38	700
800	361	355	391	54	56	57	1.12	0.77	0.48	800
900	390	385	425	59	61	64	1.37	0.94	0.58	900
1000	418	413	456	63	66	69	1.63	1.12	0.70	1000
1100	445	440	487	67	70	74	1.91	1.31	0.82	1100
1200	471	466	516	71	75	80	2.21	1.52	0.95	1200
1300	496	491	544	75	79	84	2.52	1.73	1.08	1300
1400	521	515	572	80	84	89	2.85	1.96	1.23	1400
1500	544	539	598	84	89	94	3.20	2.20	1.38	1500
1600	568	562	624	89	94	98	3.56	2.45	1.54	1600
1700	591	584	649	95	98	102	3.94	2.71	1.70	1700
1800	613	607	674	101	103	106	4.33	2.98	1.87	1800
1900	635	628	698	108	109	110	4.73	3.26	2.05	1900
2000	656	649	722	115	114	114	5.15	3.55	2.23	2000
2100	677	670	745	121	119	118	5.59	3.85	2.42	2100
2200	698	691	768	126	124	122	6.03	4.16	2.61	2200
2300	718	711	790	131	128	125	6.50	4.48	2.81	2300
2400	738	731	813	136	132	129	6.67	4.80	3.01	2400
2500	758	751	834	141	137	133	7.46	5.14	3.23	2500
2600	778	770	856	146	141	136	7.96	5.48	3.44	2600
2700	797	789	877	151	145	140	8.47	5.84	3.67	2700
2800	816	808	898	155	149	143	9.00	6.20	3.89	2800
2900	835	826	919	160	153	147	9.54	6.57	4.13	2900
3000	853	845	939	165	157	150	10.09	6.95	4.36	3000

TABLE 33. TRANSPORT PROPERTIES OF NITROGEN TRIFLUORIDE-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	NF_3-NF_3	NF_3-A	A-A	NF_3-NF_3	NF_3-A	A-A	NF_3-NF_3	NF_3-A	A-A	
100	61	69	83	4	5	7	0.01	0.01	0.02	100
200	124	139	166	10	11	12	0.04	0.06	0.09	200
300	181	200	237	19	18	17	0.08	0.13	0.19	300
400	232	254	298	28	25	22	0.14	0.21	0.32	400
500	277	302	352	36	31	26	0.21	0.32	0.47	500
600	318	346	401	44	37	30	0.29	0.44	0.65	600
700	356	386	447	51	42	34	0.38	0.57	0.85	700
800	391	424	490	57	47	37	0.48	0.72	1.06	800
900	425	459	531	64	52	40	0.58	0.88	1.30	900
1000	456	493	569	69	56	43	0.70	1.05	1.55	1000
1100	487	525	607	74	59	45	0.82	1.23	1.82	1100
1200	516	557	642	80	64	48	0.95	1.42	2.11	1200
1300	544	587	677	84	67	51	1.08	1.63	2.41	1300
1400	572	616	710	89	71	54	1.23	1.84	2.72	1400
1500	598	644	743	94	75	56	1.38	2.07	3.05	1500
1600	624	672	775	98	78	59	1.54	2.30	3.40	1600
1700	649	699	806	102	82	62	1.70	2.55	3.76	1700
1800	674	726	837	106	85	64	1.87	2.80	4.14	1800
1900	698	752	866	110	88	67	2.05	3.06	4.52	1900
2000	722	777	896	114	91	69	2.23	3.33	4.93	2000
2100	745	802	925	118	95	72	2.42	3.62	5.34	2100
2200	768	827	953	122	98	74	2.61	3.91	5.77	2200
2300	790	851	981	125	101	77	2.81	4.20	6.21	2300
2400	813	875	1008	129	104	79	3.01	4.51	6.66	2400
2500	834	898	1035	133	107	82	3.23	4.83	7.13	2500
2600	856	921	1062	136	110	84	3.44	5.15	7.61	2600
2700	877	944	1088	140	113	86	3.67	5.48	8.10	2700
2800	898	967	1114	143	116	89	3.89	5.83	8.60	2800
2900	919	989	1140	147	119	91	4.13	6.17	9.12	2900
3000	939	1011	1165	150	122	94	4.36	6.53	9.64	3000

TABLE 34. TRANSPORT PROPERTIES OF NITROGEN TRIFLUORIDE-HYDROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	NF_3-NF_3	NF_3-H_2	H_2-H_2	NF_3-NF_3	NF_3-H_2	H_2-H_2	NF_3-NF_3	NF_3-H_2	H_2-H_2	
100	61	27	38	4	36	68	0.01	0.07	0.20	100
200	124	52	66	10	69	128	0.04	0.28	0.71	200
300	181	72	89	19	100	182	0.08	0.59	1.43	300
400	232	89	108	28	124	221	0.14	0.98	2.33	400
500	277	104	125	36	146	257	0.21	1.44	3.39	500
600	318	118	141	44	167	291	0.29	1.96	4.59	600
700	356	131	156	51	188	325	0.38	2.55	5.93	700
800	391	143	170	57	208	360	0.48	3.19	7.41	800
900	425	155	184	64	229	394	0.58	3.88	9.00	900
1000	456	166	197	69	248	428	0.70	4.63	10.72	1000
1100	487	177	209	74	267	460	0.82	5.42	12.56	1100
1200	516	187	221	80	286	493	0.95	6.27	14.50	1200
1300	544	197	233	84	305	526	1.08	7.16	16.56	1300
1400	572	207	244	89	324	559	1.23	8.09	18.72	1400
1500	598	216	256	94	343	592	1.38	9.08	20.99	1500
1600	624	225	267	98	361	624	1.54	10.10	23.36	1600
2700	649	234	277	102	379	657	1.70	11.17	25.82	1700
1800	674	243	288	106	397	689	1.87	12.28	28.39	1800
1900	698	252	298	110	415	720	2.05	13.43	31.05	1900
2000	722	260	308	114	433	752	2.23	14.62	33.80	2000
2100	745	269	318	118	450	783	2.42	15.85	36.64	2100
2200	768	277	328	122	467	813	2.61	17.12	39.58	2200
2300	790	285	337	125	484	843	2.81	18.42	42.60	2300
2400	813	293	347	129	501	873	3.01	19.77	45.71	2400
2500	834	301	356	133	518	903	3.23	21.15	48.91	2500
2600	856	308	365	136	534	932	3.44	22.57	52.19	2600
2700	877	316	374	140	550	960	3.67	24.03	55.56	2700
2800	898	324	383	143	565	987	3.89	25.52	59.00	2800
2900	919	331	392	147	580	1014	4.13	27.05	62.54	2900
3000	939	338	400	150	596	1042	4.36	28.61	66.15	3000

TABLE 35. TRANSPORT PROPERTIES OF NITROGEN TRIFLUORIDE-ATOMIC HYDROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	NF_3-NF_3	NF_3-H	H-H	NF_3-NF_3	NF_3-H	H-H	NF_3-NF_3	NF_3-H	H-H	
100	61	23	34	4	55	106	0.01	0.12	0.37	100
200	124	42	57	10	93	176	0.04	0.45	1.22	200
300	181	57	75	19	125	232	0.08	0.91	2.42	300
400	232	69	91	28	153	279	0.14	1.50	3.90	400
500	277	81	105	36	179	322	0.21	2.19	5.66	500
600	318	91	118	44	203	363	0.29	2.98	7.65	600
700	356	101	130	51	226	402	0.38	3.85	9.88	700
800	391	110	142	57	247	438	0.48	4.82	12.32	800
900	425	119	153	64	268	473	0.58	5.86	14.98	900
1000	456	128	164	69	288	507	0.70	6.98	17.83	1000
1100	487	136	175	74	306	539	0.82	8.18	20.88	1100
1200	516	144	185	80	325	570	0.95	9.45	24.12	1200
1300	544	151	194	84	342	600	1.08	10.79	27.53	1300
1400	572	159	204	89	359	630	1.23	12.19	31.13	1400
1500	598	166	213	94	376	658	1.38	13.67	34.90	1500
1600	624	173	222	98	392	686	1.54	15.21	38.84	1600
1700	649	180	231	102	408	714	1.70	16.82	42.94	1700
1800	674	187	240	106	423	740	1.87	18.49	47.20	1800
1900	698	193	249	110	438	766	2.05	20.22	51.62	1900
2000	722	200	257	114	453	792	2.23	22.01	56.20	2000
2100	745	206	265	118	468	818	2.42	23.87	60.93	2100
2200	768	213	273	122	482	843	2.61	25.78	65.81	2200
2300	790	219	281	125	496	867	2.81	27.75	70.83	2300
2400	813	225	289	129	510	891	3.01	29.77	76.01	2400
2500	834	231	297	133	524	915	3.23	31.86	81.32	2500
2600	856	237	305	136	537	938	3.44	33.99	86.78	2600
2700	877	243	312	140	551	962	3.67	36.19	92.38	2700
2800	898	248	320	143	563	984	3.89	38.43	98.11	2800
2900	919	254	327	147	577	1007	4.13	40.73	103.98	2900
3000	939	260	334	150	590	1029	4.36	43.09	109.99	3000

TABLE 36. TRANSPORT PROPERTIES OF NITROGEN TRIFLUORIDE-DEUTERIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	NF_3-NF_3	NF_3-D_2	D_2-D_2	NF_3-NF_3	NF_3-D_2	D_2-D_2	NF_3-NF_3	NF_3-D_2	D_2-D_2	
100	61	41	58	4	31	58	0.01	0.06	0.16	100
200	124	76	96	10	55	101	0.04	0.22	0.52	200
300	181	103	126	19	80	141	0.08	0.44	1.03	300
400	232	126	152	28	102	176	0.14	0.72	1.66	400
500	277	147	175	36	123	210	0.21	1.05	2.40	500
600	318	166	197	44	143	243	0.29	1.43	3.25	600
700	356	184	218	51	162	274	0.38	1.85	4.20	700
800	391	200	238	57	181	305	0.48	2.31	5.24	800
900	425	216	256	64	200	336	0.58	2.82	6.37	900
1000	456	232	275	69	217	365	0.70	3.35	7.58	1000
1100	487	246	292	74	233	393	0.82	3.93	8.88	1100
1200	516	261	309	80	250	421	0.95	4.54	10.25	1200
1300	544	275	325	84	266	449	1.08	5.18	11.71	1300
1400	572	288	341	89	282	476	1.23	5.86	13.24	1400
1500	598	301	357	94	298	502	1.38	6.57	14.84	1500
1600	624	314	372	98	313	528	1.54	7.31	16.51	1600
1700	649	327	387	102	328	554	1.70	8.08	18.26	1700
1800	674	339	402	106	342	579	1.87	8.88	20.07	1800
1900	698	351	416	110	357	605	2.05	9.72	21.95	1900
2000	722	363	430	114	372	630	2.23	10.58	23.90	2000
2100	745	375	444	118	386	654	2.42	11.47	25.91	2100
2200	768	386	457	122	400	678	2.61	12.39	27.98	2200
2300	790	397	471	125	413	702	2.81	13.33	30.12	2300
2400	813	408	484	129	427	726	3.01	14.31	32.32	2400
2500	834	419	497	133	441	750	3.23	15.31	34.58	2500
2600	856	430	510	136	455	774	3.44	16.33	36.90	2600
2700	877	441	522	140	468	797	3.67	17.39	39.28	2700
2800	898	451	535	143	482	821	3.89	18.47	41.72	2800
2900	919	462	547	147	495	844	4.13	19.57	44.21	2900
3000	939	472	559	150	509	868	4.36	20.70	46.77	3000

TABLE 37. TRANSPORT PROPERTIES OF NITROGEN TRIFLUORIDE-ATOMIC DEUTERIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	NF_3-NF_3	NF_3-D	D-D	NF_3-NF_3	NF_3-D	D-D	NF_3-NF_3	NF_3-D	D-D	
100	61	32	50	4	41	79	0.01	0.09	0.27	100
200	124	59	83	10	70	130	0.04	0.33	0.90	200
300	181	80	109	19	94	170	0.08	0.67	1.79	300
400	232	98	132	28	116	204	0.14	1.09	2.88	400
500	277	114	152	36	136	237	0.21	1.60	4.18	500
600	318	129	171	44	155	267	0.29	2.17	5.65	600
700	356	143	189	51	173	295	0.38	2.81	7.29	700
800	391	156	206	57	189	321	0.48	3.51	9.10	800
900	425	168	223	64	205	347	0.58	4.27	11.06	900
1000	456	180	238	69	220	371	0.70	5.08	13.17	1000
1100	487	192	254	74	234	395	0.82	5.95	15.42	1100
1200	516	203	268	80	249	418	0.95	6.88	17.81	1200
1300	544	214	283	84	262	440	1.08	7.85	20.33	1300
1400	572	224	296	89	275	461	1.23	8.88	22.99	1400
1500	598	235	310	94	288	482	1.38	9.96	25.77	1500
1600	624	245	323	98	300	503	1.54	11.08	28.68	1600
1700	649	254	336	102	312	523	1.70	12.25	31.71	1700
1800	674	264	349	106	324	543	1.87	13.46	34.85	1800
1900	698	273	361	110	336	563	2.05	14.73	38.12	1900
2000	722	283	373	114	348	582	2.23	16.03	41.50	2000
2100	745	292	385	118	359	601	2.42	17.38	44.99	2100
2200	768	301	397	122	370	619	2.61	18.77	48.59	2200
2300	790	309	409	125	381	637	2.81	20.21	52.30	2300
2400	813	318	420	129	392	655	3.01	21.68	56.12	2400
2500	834	326	431	133	403	673	3.23	23.20	60.05	2500
2600	856	335	443	136	413	690	3.44	24.76	64.08	2600
2700	877	343	453	140	423	707	3.67	26.35	68.21	2700
2800	898	351	464	143	433	724	3.89	27.99	72.45	2800
2900	919	359	475	147	443	740	4.13	29.66	76.78	2900
3000	939	367	486	150	453	757	4.36	31.38	81.22	3000

TABLE 38. TRANSPORT PROPERTIES OF NITROGEN TETRAFLUORIDE-HELIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2F_4-N_2F_4	N_2F_4-HE	HE-HE	N_2F_4-N_2F_4	N_2F_4-HE	HE-HE	N_2F_4-N_2F_4	N_2F_4-HE	HE-HE	
100	73	61	99	3	38	73	0.01	0.09	0.29	100
200	146	105	156	7	61	115	0.03	0.29	0.92	200
300	220	139	202	18	85	152	0.07	0.59	1.84	300
400	287	168	244	31	109	187	0.12	0.95	3.01	400
500	349	195	284	43	131	220	0.18	1.38	4.41	500
600	405	219	322	55	153	252	0.25	1.87	6.04	600
700	457	242	359	68	174	281	0.33	2.42	7.88	700
800	506	264	394	81	194	308	0.42	3.02	9.92	800
900	551	285	429	94	213	332	0.51	3.67	12.20	900
1000	595	305	461	107	232	357	0.62	4.36	14.60	1000
1100	637	325	494	117	248	380	0.73	5.11	17.20	1100
1200	677	344	525	126	264	403	0.84	5.90	20.10	1200
1300	715	362	556	134	279	425	0.97	6.74	23.00	1300
1400	752	380	586	142	294	447	1.10	7.62	26.30	1400
1500	788	397	614	150	309	468	1.23	8.54	29.60	1500
1600	823	414	643	157	322	488	1.38	9.50	33.20	1600
2700	857	431	671	163	335	508	1.52	10.51	36.90	1700
1800	890	447	698	170	349	528	1.68	11.55	40.80	1800
1900	922	463	725	177	362	547	1.84	12.63	44.90	1900
2000	954	479	752	183	374	566	2.00	13.75	49.10	2000
2100	985	494	778	189	387	585	2.17	14.91	53.50	2100
2200	1016	509	804	196	399	603	2.35	16.11	58.10	2200
2300	1046	524	830	202	412	622	2.53	17.34	62.80	2300
2400	1075	538	855	208	424	640	2.71	18.60	67.70	2400
2500	1104	553	880	214	435	657	2.90	19.90	72.80	2500
2600	1133	567	905	220	447	674	3.10	21.24	78.00	2600
2700	1161	581	929	226	458	691	3.30	22.61	83.40	2700
2800	1189	595	953	232	470	708	3.51	24.01	88.90	2800
2900	1216	609	977	238	481	724	3.72	25.45	94.60	2900
3000	1243	622	1001	244	492	740	3.93	26.92	101.00	3000

TABLE 39. TRANSPORT PROPERTIES OF NITROGEN TETRAFLUORIDE-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2F_4-N_2F_4	N_2F_4-N_2	N_2-N_2	N_2F_4-N_2F_4	N_2F_4-N_2	N_2-N_2	N_2F_4-N_2F_4	N_2F_4-N_2	N_2-N_2	
100	73	62	65	3	6	9	0.01	0.02	0.03	100
200	146	125	128	7	12	18	0.03	0.06	0.10	200
300	220	182	179	18	22	26	0.07	0.13	0.21	300
400	287	232	223	31	32	33	0.12	0.23	0.34	400
500	349	276	262	43	41	39	0.18	0.34	0.50	500
600	405	316	297	55	49	44	0.25	0.46	0.69	600
700	457	354	330	68	58	49	0.33	0.61	0.89	700
800	506	388	361	81	67	54	0.42	0.76	1.12	800
900	551	421	390	94	76	59	0.51	0.93	1.37	900
1000	595	453	418	107	85	63	0.62	1.11	1.63	1000
1100	637	483	445	117	92	67	0.73	1.31	1.91	1100
1200	677	512	471	126	98	71	0.84	1.51	2.21	1200
1300	715	539	496	134	104	75	0.97	1.73	2.52	1300
1400	752	566	521	142	111	80	1.10	1.96	2.85	1400
1500	788	593	544	150	117	84	1.23	2.20	3.20	1500
1600	823	618	568	157	123	89	1.38	2.45	3.56	1600
1700	857	643	591	163	129	95	1.52	2.71	3.94	1700
1800	890	667	613	170	135	101	1.68	2.98	4.33	1800
1900	922	691	635	177	142	108	1.84	3.26	4.73	1900
2000	954	715	656	183	149	115	2.00	3.55	5.15	2000
2100	985	738	677	189	155	121	2.17	3.85	5.59	2100
2200	1016	760	698	196	161	126	2.35	4.16	6.03	2200
2300	1046	783	718	202	165	131	2.53	4.48	6.50	2300
2400	1075	805	738	208	172	136	2.71	4.80	6.97	2400
2500	1104	826	758	214	177	141	2.90	5.14	7.46	2500
2600	1133	847	778	220	183	146	3.10	5.49	7.96	2600
2700	1161	868	797	226	188	151	3.30	5.84	8.47	2700
2800	1189	889	816	232	193	155	3.51	6.20	9.00	2800
2900	1216	910	835	238	199	160	3.72	6.57	9.54	2900
3000	1243	930	853	244	204	165	3.93	6.95	10.09	3000

TABLE 40. TRANSPORT PROPERTIES OF NITROGEN TETRAFLUORIDE-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2F_4-N_2F_4	N_2F_4-A	A-A	N_2F_4-N_2F_4	N_2F_4-A	A-A	N_2F_4-N_2F_4	N_2F_4-A	A-A	
100	73	72	83	3	5	7	0.01	0.01	0.02	100
200	146	147	166	7	9	12	0.03	0.06	0.09	200
300	220	216	237	18	17	17	0.07	0.12	0.19	300
400	287	277	298	31	26	22	0.12	0.21	0.32	400
500	349	332	352	43	34	26	0.18	0.31	0.47	500
600	405	381	401	55	42	30	0.25	0.43	0.65	600
700	457	427	447	68	51	34	0.33	0.56	0.85	700
800	506	470	490	81	59	37	0.42	0.70	1.06	800
900	551	511	531	94	67	40	0.51	0.86	1.30	900
1000	595	549	569	107	75	43	0.62	1.03	1.55	1000
1100	637	586	607	117	81	45	0.73	1.21	1.82	1100
1200	677	621	642	126	87	48	0.84	1.40	2.11	1200
1300	715	655	677	134	92	51	0.97	1.60	2.41	1300
1400	752	688	710	142	98	54	1.10	1.82	2.72	1400
1500	788	720	743	150	103	56	1.23	2.04	3.05	1500
1600	823	751	775	157	108	59	1.38	2.27	3.40	1600
1700	857	782	806	163	112	62	1.52	2.52	3.76	1700
1800	890	812	837	170	117	64	1.68	2.77	4.14	1800
1900	922	841	866	177	122	67	1.84	3.03	4.52	1900
2000	954	869	896	183	126	69	2.00	3.30	4.93	2000
2100	985	897	925	189	130	72	2.17	3.58	5.34	2100
2200	1016	925	953	196	135	74	2.35	3.86	5.77	2200
2300	1046	952	981	202	139	77	2.53	4.16	6.21	2300
2400	1075	979	1008	208	143	79	2.71	4.46	6.66	2400
2500	1104	1005	1035	214	148	82	2.90	4.78	7.13	2500
2600	1133	1031	1062	220	152	84	3.10	5.10	7.61	2600
2700	1161	1056	1088	226	156	86	3.30	5.43	8.10	2700
2800	1189	1082	1114	232	160	89	3.51	5.76	8.60	2800
2900	1216	1107	1140	238	164	91	3.72	6.11	9.12	2900
3000	1243	1131	1165	294	169	94	3.93	6.46	9.64	3000

TABLE 41. TRANSPORT PROPERTIES OF NITROGEN TETRAFLUORIDE-HYDROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2F_4-N_2F_4	N_2F_4-H_2	H_2-H_2	N_2F_4-N_2F_4	N_2F_4-H_2	H_2-H_2	N_2F_4-N_2F_4	N_2F_4-H_2	H_2-H_2	
100	73	27	38	3	35	68	0.01	0.07	0.20	100
200	146	53	66	7	67	128	0.03	0.29	0.71	200
300	220	75	89	18	100	182	0.07	0.61	1.43	300
400	287	93	108	31	126	221	0.12	1.02	2.33	400
500	349	110	125	43	150	257	0.18	1.50	3.39	500
600	405	125	141	55	173	291	0.25	2.05	4.59	600
700	457	139	156	68	196	325	0.33	2.66	5.93	700
800	506	152	170	81	220	360	0.42	3.34	7.41	800
900	551	164	184	94	244	394	0.51	4.07	9.00	900
1000	595	176	197	107	267	428	0.62	4.86	10.72	1000
1100	637	188	209	117	288	460	0.73	5.70	12.56	1100
1200	677	199	221	126	309	493	0.84	6.59	14.50	1200
1300	715	209	233	134	330	526	0.97	7.53	16.56	1300
1400	752	219	244	142	350	559	1.10	8.51	18.72	1400
1500	788	230	256	150	371	592	1.23	9.55	20.99	1500
1600	823	239	267	157	390	624	1.38	10.63	23.36	1600
1700	857	249	277	163	410	657	1.52	11.75	25.82	1700
1800	890	258	288	170	429	689	1.68	12.92	28.39	1800
1900	922	268	298	177	448	720	1.84	14.13	31.05	1900
2000	954	277	308	183	467	752	2.00	15.38	33.80	2000
2100	985	286	318	189	486	783	2.17	16.68	36.64	2100
2200	1016	294	328	196	504	813	2.35	18.01	39.58	2200
2300	1046	303	337	202	522	843	2.53	19.39	42.60	2300
2400	1075	311	347	208	540	873	2.71	20.80	45.71	2400
2500	1104	320	356	214	558	903	2.90	22.26	48.91	2500
2600	1133	328	365	220	576	932	3.10	23.75	52.19	2600
2700	1161	336	374	226	593	960	3.30	25.29	55.56	2700
2800	1189	344	383	232	609	987	3.51	26.86	59.00	2800
2900	1216	352	392	238	626	1014	3.72	28.46	62.54	2900
3000	1243	360	400	244	643	1042	3.93	30.11	66.15	3000

TABLE 42. TRANSPORT PROPERTIES OF NITROGEN TETRAFLUORIDE-ATOMIC HYDROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2F_4-N_2F_4	N_2F_4-H	H-H	N_2F_4-N_2F_4	N_2F_4-H	H-H	N_2F_4-N_2F_4	N_2F_4-H	H-H	
100	73	23	34	3	54	106	0.01	0.12	0.37	100
200	146	43	57	7	91	176	0.03	0.46	1.22	200
300	220	59	75	18	125	232	0.07	0.95	2.42	300
400	287	73	91	31	155	279	0.12	1.57	3.90	400
500	349	85	105	43	182	322	0.18	2.30	5.66	500
600	405	97	118	55	209	363	0.25	3.13	7.65	600
700	457	107	130	68	235	402	0.33	4.06	9.88	700
800	506	117	142	81	259	438	0.42	5.08	12.32	800
900	551	126	153	94	283	473	0.51	6.18	14.98	900
1000	595	135	164	107	307	507	0.62	7.37	17.83	1000
1100	637	144	175	117	328	539	0.73	8.63	20.88	1100
1200	677	152	185	126	348	570	0.84	9.97	24.12	1200
1300	715	161	194	134	367	600	0.97	11.39	27.53	1300
1400	752	169	204	142	386	630	1.10	12.88	31.13	1400
1500	788	176	213	150	404	658	1.23	14.44	34.90	1500
1600	823	184	222	157	421	686	1.38	16.07	38.84	1600
1700	857	191	231	163	438	714	1.52	17.76	42.94	1700
1800	890	198	240	170	455	740	1.68	19.53	47.20	1800
1900	922	205	249	177	471	766	1.84	21.36	51.62	1900
2000	954	212	257	183	487	792	2.00	23.25	56.20	2000
2100	985	219	265	189	503	818	2.17	25.21	60.93	2100
2200	1016	226	273	196	519	843	2.35	27.23	65.81	2200
2300	1046	232	281	202	534	867	2.53	29.31	70.83	2300
2400	1075	239	289	208	549	891	2.71	31.45	76.01	2400
2500	1104	245	297	214	564	915	2.90	33.65	81.32	2500
2600	1133	252	305	220	579	938	3.10	35.91	86.78	2600
2700	1161	258	312	226	594	962	3.30	38.22	92.38	2700
2800	1189	264	320	232	608	984	3.51	40.59	98.11	2800
2900	1216	270	327	238	622	1007	3.72	43.02	103.98	2900
3000	1243	276	334	244	636	1029	3.93	45.51	109.99	3000

TABLE 43. TRANSPORT PROPERTIES OF NITROGEN TETRAFLUORIDE-DEUTERIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2F_4-N_2F_4	N_2F_4-D_2	D_2-D_2	N_2F_4-N_2F_4	N_2F_4-D_2	D_2-D_2	N_2F_4-N_2F_4	N_2F_4-D_2	D_2-D_2	
100	73	42	58	3	30	58	0.01	0.06	0.16	100
200	146	79	96	7	54	101	0.03	0.22	0.52	200
300	220	108	126	18	79	141	0.07	0.45	1.03	300
400	287	133	152	31	103	176	0.12	0.75	1.66	400
500	349	156	175	43	126	210	0.18	1.09	2.40	500
600	405	176	197	55	149	243	0.25	1.49	3.25	600
700	457	195	218	68	171	274	0.33	1.93	4.20	700
800	506	213	238	81	193	305	0.42	2.42	5.24	800
900	551	230	256	94	215	336	0.51	2.94	6.37	900
1000	595	247	275	107	236	365	0.62	3.51	7.58	1000
1100	637	263	292	117	255	393	0.73	4.11	8.88	1100
1200	677	278	309	126	273	421	0.84	4.75	10.25	1200
1300	715	293	325	134	291	449	0.97	5.42	11.71	1300
1400	752	307	341	142	309	476	1.10	6.13	13.24	1400
1500	788	321	357	150	326	502	1.23	6.87	14.84	1500
1600	823	335	372	157	342	528	1.38	7.65	16.51	1600
1700	857	348	387	163	358	554	1.52	8.46	18.26	1700
1800	890	361	402	170	374	579	1.68	9.30	20.07	1800
1900	922	374	416	177	391	605	1.84	10.17	21.95	1900
2000	954	387	430	183	406	630	2.00	11.07	23.90	2000
2100	985	399	444	189	421	654	2.17	12.00	25.91	2100
2200	1016	412	457	196	437	678	2.35	12.96	27.98	2200
2300	1046	424	471	202	452	702	2.53	13.95	30.12	2300
2400	1075	435	484	208	467	726	2.71	14.97	32.32	2400
2500	1104	447	497	214	482	750	2.90	16.02	34.58	2500
2600	1133	459	510	220	497	774	3.10	17.09	36.90	2600
2700	1161	470	522	226	511	797	3.30	18.20	39.28	2700
2800	1189	481	535	232	526	821	3.51	19.33	41.72	2800
2900	1216	492	547	238	541	844	3.72	20.48	44.21	2900
3000	1243	503	559	244	556	868	3.93	21.66	46.77	3000

TABLE 44. TRANSPORT PROPERTIES OF NITROGEN TETRAFLUORIDE-ATOMIC DEUTERIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2F_4-N_2F_4	N_2F_4-D	D-D	N_2F_4-N_2F_4	N_2F_4-D	D-D	N_2F_4-N_2F_4	N_2F_4-D	D-D	
100	73	32	50	3	41	79	0.01	0.09	0.27	100
200	146	61	83	7	68	130	0.03	0.34	0.90	200
300	220	84	109	18	94	170	0.07	0.69	1.79	300
400	287	104	132	31	117	204	0.12	1.14	2.88	400
500	349	121	152	43	140	237	0.18	1.67	4.18	500
600	405	137	171	55	161	267	0.25	2.28	5.65	600
700	457	152	189	68	181	295	0.33	2.95	7.29	700
800	506	166	206	81	201	321	0.42	3.69	9.10	800
900	551	179	223	94	220	347	0.51	4.49	11.06	900
1000	595	192	238	107	239	371	0.62	5.36	13.17	1000
1100	637	204	254	117	256	395	0.73	6.28	15.42	1100
1200	677	216	268	126	272	418	0.84	7.25	17.81	1200
1300	715	228	283	134	287	440	0.97	8.28	20.33	1300
1400	752	239	296	142	301	461	1.10	9.36	22.99	1400
1500	788	250	310	150	316	482	1.23	10.50	25.77	1500
1600	823	260	323	157	330	503	1.38	11.68	28.68	1600
1700	857	271	336	163	343	523	1.52	12.92	31.71	1700
1800	890	281	349	170	356	543	1.68	14.20	34.85	1800
1900	922	291	361	177	370	563	1.84	15.53	38.12	1900
2000	954	301	373	183	382	582	2.00	16.90	41.50	2000
2100	985	311	385	189	395	601	2.17	18.33	44.99	2100
2200	1016	320	397	196	407	619	2.35	19.80	48.59	2200
2300	1046	329	409	202	419	637	2.53	21.31	52.30	2300
2400	1075	339	420	208	431	655	2.71	22.86	56.12	2400
2500	1104	348	431	214	443	673	2.90	24.46	60.05	2500
2600	1133	357	443	220	455	690	3.10	26.10	64.08	2600
2700	1161	366	453	226	466	707	3.30	27.79	68.21	2700
2800	1189	374	464	232	478	724	3.51	29.51	72.45	2800
2900	1216	383	475	238	489	740	3.72	31.28	76.78	2900
3000	1243	391	486	244	500	757	3.93	33.09	81.22	3000

TABLE 45. TRANSPORT PROPERTIES OF CHLORINE PENTAFLUORIDE-HELIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	HE-HE	HE-CLF_5	CLF_5-CLF_5	HE-HE	HE-CLF_5	CLF_5-CLF_5	HE-HE	HE-CLF_5	CLF_5-CLF_5	
100	99	41	40	73	40	7	0.29	0.06	0.00	100
200	156	73	74	115	64	13	0.92	0.20	0.01	200
300	202	98	111	152	85	19	1.84	0.41	0.03	300
400	244	119	150	187	106	25	3.01	0.67	0.05	400
500	284	139	188	220	126	32	4.41	0.97	0.08	500
600	322	156	225	252	145	38	6.04	1.32	0.11	600
700	359	173	260	281	162	44	7.88	1.71	0.15	700
800	394	189	292	308	179	50	9.92	2.13	0.19	800
900	429	204	324	332	194	57	12.20	2.59	0.24	900
1000	461	218	354	357	210	63	14.60	3.08	0.29	1000
1100	494	232	382	380	223	67	17.20	3.61	0.35	1100
1200	525	245	410	403	238	74	20.10	4.17	0.41	1200
1300	556	259	436	425	252	79	23.00	4.76	0.47	1300
1400	586	271	461	447	266	85	26.30	5.39	0.53	1400
1500	614	284	486	468	279	90	29.60	6.04	0.60	1500
1600	643	296	510	488	291	95	33.20	6.72	0.68	1600
1700	671	308	533	508	304	100	36.90	7.43	0.75	1700
1800	698	319	555	528	316	105	40.80	8.17	0.83	1800
1900	725	331	577	547	328	109	44.90	8.93	0.91	1900
2000	752	342	598	566	339	112	49.10	9.72	0.99	2000
2100	778	353	619	585	350	115	53.50	10.54	1.08	2100
2200	804	363	640	603	360	118	58.10	11.38	1.17	2200
2300	830	374	660	622	371	121	62.80	12.25	1.26	2300
2400	855	384	680	640	381	123	67.70	13.15	1.36	2400
2500	880	395	699	657	391	125	72.80	14.07	1.46	2500
2600	905	405	718	674	400	127	78.00	15.01	1.56	2600
2700	929	415	736	691	410	129	83.40	15.98	1.66	2700
2800	953	425	755	708	419	131	88.90	16.97	1.76	2800
2900	977	435	773	724	428	133	94.60	17.99	1.87	2900
3000	1001	444	790	740	437	135	101.00	19.03	1.98	3000

TABLE 46. TRANSPORT PROPERTIES OF CHLORINE PENTAFLUORIDE-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-CLF_5	CLF_5-CLF_5	N_2-N_2	N_2-CLF_5	CLF_5-CLF_5	N_2-N_2	N_2-CLF_5	CLF_5-CLF_5	
100	65	42	40	9	8	7	0.03	0.01	0.00	100
200	128	84	74	18	15	13	0.10	0.04	0.01	200
300	179	126	111	26	22	19	0.21	0.09	0.03	300
400	223	165	150	33	29	25	0.34	0.15	0.05	400
500	262	199	188	39	35	32	0.50	0.23	0.08	500
600	297	231	225	44	41	38	0.69	0.32	0.11	600
700	330	260	260	49	46	44	0.89	0.42	0.15	700
800	361	287	292	54	52	50	1.12	0.54	0.19	800
900	390	313	324	59	58	57	1.37	0.66	0.24	900
1000	418	337	354	63	63	63	1.63	0.79	0.29	1000
1100	445	360	382	67	67	67	1.91	0.93	0.35	1100
1200	471	383	410	71	72	74	2.21	1.08	0.41	1200
1300	496	404	436	75	77	79	2.52	1.24	0.47	1300
1400	521	425	461	80	82	85	2.85	1.40	0.53	1400
1500	544	445	486	84	87	90	3.20	1.57	0.60	1500
1600	568	465	510	89	92	95	3.56	1.76	0.68	1600
1700	591	484	533	95	97	100	3.94	1.94	0.75	1700
1800	613	503	555	101	103	105	4.33	2.14	0.83	1800
1900	635	521	577	108	108	109	4.73	2.34	0.91	1900
2000	656	539	598	115	113	112	5.15	2.55	0.99	2000
2100	677	556	619	121	118	115	5.59	2.77	1.08	2100
2200	698	573	640	126	122	118	6.03	2.99	1.17	2200
2300	718	590	660	131	126	121	6.50	3.22	1.26	2300
2400	738	607	680	136	129	123	6.97	3.46	1.36	2400
2500	758	623	699	141	133	125	7.46	3.70	1.46	2500
2600	778	639	718	146	137	127	7.96	3.95	1.56	2600
2700	797	655	736	151	140	129	8.47	4.21	1.66	2700
2800	816	671	755	155	143	131	9.00	4.47	1.76	2800
2900	835	686	773	160	146	133	9.54	4.74	1.87	2900
3000	853	702	790	165	150	135	10.09	5.01	1.98	3000

TABLE 47. TRANSPORT PROPERTIES OF CHLORINE PENTAFLUORIDE-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	A-A	A-CLF_5	CLF_5-CLF_5	A-A	A-CLF_5	CLF_5-CLF_5	A-A	A-CLF_5	CLF_5-CLF_5	
100	83	49	40	7	7	7	0.02	0.01	0.00	100
200	166	99	74	12	12	13	0.09	0.04	0.01	200
300	237	149	111	17	18	19	0.19	0.08	0.03	300
400	298	195	150	22	23	25	0.32	0.14	0.05	400
500	352	237	188	26	29	32	0.47	0.21	0.08	500
600	401	276	225	30	34	38	0.65	0.29	0.11	600
700	447	312	260	34	39	44	0.85	0.38	0.15	700
800	490	345	292	37	43	50	1.06	0.49	0.19	800
900	531	377	324	40	48	57	1.30	0.60	0.24	900
1000	569	407	354	43	53	63	1.55	0.72	0.29	1000
1100	607	435	382	45	56	67	1.82	0.85	0.35	1100
1200	642	463	410	48	61	74	2.11	0.98	0.41	1200
1300	677	489	436	51	65	79	2.41	1.13	0.47	1300
1400	710	515	461	54	69	85	2.72	1.28	0.53	1400
1500	743	539	486	56	73	90	3.05	1.44	0.60	1500
1600	775	563	510	59	77	95	3.40	1.60	0.68	1600
1700	806	587	533	62	81	100	3.76	1.77	0.75	1700
1800	837	609	555	64	84	105	4.14	1.95	0.83	1800
1900	866	632	577	67	88	109	4.52	2.14	0.91	1900
2000	896	653	598	69	90	112	4.93	2.33	0.99	2000
2100	925	675	619	72	93	115	5.34	2.53	1.08	2100
2200	953	695	640	74	96	118	5.77	2.73	1.17	2200
2300	981	716	660	77	99	121	6.21	2.94	1.26	2300
2400	1008	736	680	79	101	123	6.66	3.16	1.36	2400
2500	1035	756	699	82	103	125	7.13	3.38	1.46	2500
2600	1062	776	718	84	105	127	7.61	3.61	1.56	2600
2700	1088	795	736	86	107	129	8.10	3.85	1.66	2700
2800	1114	814	755	89	110	131	8.60	4.08	1.76	2800
2900	1140	833	773	91	112	133	9.12	4.33	1.87	2900
3000	1165	851	790	94	114	135	9.64	4.58	1.98	3000

TABLE 48. TRANSPORT PROPERTIES OF CHLORINE PENTAFLUORIDE-HYDROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\,m^{-1}\,K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\,s^{-1} \cdot 10^{-4}$)			Temp. (K)
	H_2-H_2	H_2-CLF_5	CLF_5-CLF_5	H_2-H_2	H_2-CLF_5	CLF_5-CLF_5	H_2-H_2	H_2-CLF_5	CLF_5-CLF_5	
100	38	17	40	68	37	7	0.20	0.05	0.00	100
200	66	35	74	128	70	13	0.71	0.19	0.01	200
300	89	51	111	182	100	19	1.43	0.41	0.03	300
400	108	65	150	221	123	25	2.33	0.70	0.05	400
500	125	77	188	257	144	32	3.39	1.05	0.08	500
600	141	88	225	291	164	38	4.59	1.44	0.11	600
700	156	99	260	325	184	44	5.93	1.88	0.15	700
800	170	108	292	360	205	50	7.41	2.36	0.19	800
900	184	118	324	394	225	57	9.00	2.89	0.24	900
1000	197	126	354	428	245	63	10.72	3.45	0.29	1000
1100	209	135	382	460	263	67	12.56	4.05	0.35	1100
1200	221	143	410	493	283	74	14.50	4.69	0.41	1200
1300	233	150	436	526	302	79	16.56	5.37	0.47	1300
1400	244	158	461	559	322	85	18.72	6.08	0.53	1400
1500	256	165	486	592	341	90	20.99	6.82	0.60	1500
1600	267	172	510	624	359	95	23.36	7.59	0.68	1600
1700	277	179	533	657	378	100	25.82	8.40	0.75	1700
1800	288	186	555	689	397	105	28.39	9.24	0.83	1800
1900	298	193	577	720	414	109	31.05	10.11	0.91	1900
2000	308	199	598	752	432	112	33.80	11.01	0.99	2000
2100	318	206	619	783	449	115	36.64	11.94	1.08	2100
2200	328	212	640	813	465	118	39.58	12.89	1.17	2200
2300	337	218	660	843	482	121	42.60	13.88	1.26	2300
2400	347	224	680	873	498	123	45.71	14.90	1.36	2400
2500	356	230	699	903	514	125	48.91	15.94	1.46	2500
2600	365	236	718	932	529	127	52.19	17.01	1.56	2600
2700	374	242	736	960	544	129	55.56	18.11	1.66	2700
2800	383	248	755	987	559	131	59.00	19.23	1.76	2800
2900	392	254	773	1014	573	133	62.54	20.38	1.87	2900
3000	400	259	790	1042	588	135	66.15	21.56	1.98	3000

TABLE 49. TRANSPORT PROPERTIES OF CHLORINE PENTAFLUORIDE-ATOMIC HYDROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	H-H	H-CLF_5	CLF_5-CLF_5	H-H	H-CLF_5	CLF_5-CLF_5	H-H	H-CLF_5	CLF_5-CLF_5	
100	34	14	40	106	56	7	0.37	0.08	0.00	100
200	57	29	74	175	94	13	1.22	0.31	0.01	200
300	75	41	111	230	124	19	2.42	0.65	0.03	300
400	91	51	150	278	151	25	3.90	1.09	0.05	400
500	105	60	188	321	176	32	5.66	1.61	0.08	500
600	118	68	225	362	200	38	7.65	2.20	0.11	600
700	130	76	260	400	222	44	9.88	2.86	0.15	700
800	142	83	292	436	243	50	12.32	3.59	0.19	800
900	153	90	324	470	263	57	14.98	4.38	0.24	900
1000	164	97	354	504	283	63	17.83	5.23	0.29	1000
1100	175	103	382	536	301	67	20.88	6.14	0.35	1100
1200	185	109	410	567	320	74	24.12	7.10	0.41	1200
1300	194	115	436	597	338	79	27.53	8.11	0.47	1300
1400	204	121	461	626	355	85	31.13	9.17	0.53	1400
1500	213	126	486	655	372	90	34.90	10.29	0.60	1500
1600	222	132	510	683	389	95	38.84	11.45	0.68	1600
1700	231	137	533	710	405	100	42.94	12.66	0.75	1700
1800	240	142	555	737	421	105	47.20	13.92	0.83	1800
1900	249	147	577	763	436	109	51.62	15.23	0.91	1900
2000	257	152	598	789	450	112	56.20	16.58	0.99	2000
2100	265	157	619	814	464	115	60.93	17.98	1.08	2100
2200	273	162	640	839	478	118	65.81	19.42	1.17	2200
2300	281	167	660	863	492	121	70.83	20.90	1.26	2300
2400	289	171	680	888	505	123	76.01	22.43	1.36	2400
2500	297	176	699	911	518	125	81.32	24.00	1.46	2500
2600	305	180	718	935	531	127	86.78	25.61	1.56	2600
2700	312	185	736	958	543	129	92.38	27.26	1.66	2700
2800	320	189	755	981	556	131	98.11	28.95	1.76	2800
2900	327	194	773	1003	568	133	103.98	30.69	1.87	2900
3000	334	198	790	1026	580	135	109.99	32.46	1.98	3000

TABLE 50. TRANSPORT PROPERTIES OF CHLORINE PENTAFLUORIDE-DEUTERIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	D_2-D_2	D_2-CLF_5	CLF_5-CLF_5	D_2-D_2	D_2-CLF_5	CLF_5-CLF_5	D_2-D_2	D_2-CLF_5	CLF_5-CLF_5	
100	58	27	40	58	32	7	0.16	0.04	0.00	100
200	96	53	74	101	57	13	0.52	0.15	0.01	200
300	126	75	111	141	80	19	1.03	0.31	0.03	300
400	152	94	150	176	100	25	1.66	0.52	0.05	400
500	175	111	188	210	121	32	2.40	0.77	0.08	500
600	197	126	225	243	140	38	3.25	1.06	0.11	600
700	218	141	260	274	159	44	4.20	1.37	0.15	700
800	238	154	292	305	177	50	5.24	1.72	0.19	800
900	256	167	324	336	196	57	6.37	2.10	0.24	900
1000	275	179	354	365	214	63	7.58	2.51	0.29	1000
1100	292	190	382	393	230	68	8.88	2.94	0.35	1100
1200	309	201	410	421	247	74	10.25	3.40	0.41	1200
1300	325	212	436	449	264	79	11.71	3.89	0.47	1300
1400	341	223	461	476	280	85	13.24	4.40	0.53	1400
1500	357	233	486	502	296	90	14.84	4.93	0.60	1500
1600	372	243	510	528	311	95	16.51	5.49	0.68	1600
1700	387	253	533	554	327	100	18.26	6.07	0.75	1700
1800	402	262	555	579	342	105	20.07	6.68	0.83	1800
1900	416	272	577	605	357	109	21.95	7.30	0.91	1900
2000	430	281	598	630	371	112	23.90	7.95	0.99	2000
2100	444	290	619	654	384	115	25.91	8.62	1.08	2100
2200	457	299	640	678	398	118	27.98	9.31	1.17	2200
2300	471	307	660	702	411	121	30.12	10.12	1.26	2300
2400	484	316	680	726	424	123	32.32	10.75	1.36	2400
2500	497	324	699	750	438	125	34.58	11.51	1.46	2500
2600	510	333	718	774	450	127	36.90	12.28	1.56	2600
2700	522	341	736	797	463	129	39.28	13.07	1.66	2700
2800	535	349	755	821	476	131	41.72	13.88	1.76	2800
2900	547	357	773	844	488	133	44.21	14.71	1.87	2900
3000	559	365	790	868	501	135	46.77	15.56	1.98	3000

TABLE 51. TRANSPORT PROPERTIES OF CHLORINE PENTAFLUORIDE-ATOMIC DEUTERIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	CLF_5-CLF_5	CLF_5-D	D-D	CLF_5-CLF_5	CLF_5-D	D-D	CLF_5-CLF_5	CLF_5-D	D-D	
100	40	21	50	7	43	79	0.00	0.06	0.27	100
200	74	41	83	13	71	130	0.01	0.22	0.90	200
300	111	58	109	19	94	170	0.03	0.47	1.79	300
400	150	72	132	25	114	204	0.05	0.79	2.88	400
500	188	85	152	32	134	237	0.08	1.17	4.18	500
600	225	97	171	38	152	267	0.11	1.60	5.65	600
700	260	108	189	44	169	295	0.15	2.08	7.29	700
800	292	118	206	50	185	321	0.19	2.61	9.10	800
900	324	128	223	57	202	347	0.24	3.18	11.06	900
1000	354	137	238	63	217	371	0.29	3.79	13.17	1000
1100	382	146	254	67	231	395	0.35	4.45	15.42	1100
1200	410	155	268	74	246	418	0.41	5.15	17.81	1200
1300	436	163	283	79	259	440	0.47	5.88	20.33	1300
1400	461	171	296	85	273	461	0.53	6.65	22.99	1400
1500	486	179	310	90	286	482	0.60	7.46	25.77	1500
1600	510	186	323	95	299	503	0.68	8.31	28.68	1600
1700	533	194	336	100	311	523	0.75	9.19	31.71	1700
1800	555	201	349	105	324	543	0.83	10.10	34.85	1800
1900	577	208	361	109	336	563	0.91	11.05	38.12	1900
2000	598	216	373	112	347	582	0.99	12.03	41.50	2000
2100	619	222	385	115	358	601	1.08	13.04	44.99	2100
2200	640	229	397	118	368	619	1.17	14.08	48.59	2200
2300	660	236	409	121	379	637	1.26	15.16	52.30	2300
2400	680	243	420	123	389	655	1.36	16.27	56.12	2400
2500	699	249	431	125	399	673	1.46	17.41	60.05	2500
2600	718	255	443	127	408	690	1.56	18.57	64.08	2600
2700	736	262	453	129	418	707	1.66	19.77	68.21	2700
2800	755	268	464	131	427	724	1.76	21.00	72.45	2800
2900	773	274	475	133	436	740	1.87	22.26	76.78	2900
3000	790	280	486	135	446	757	1.98	23.54	81.22	3000

TABLE 52. TRANSPORT PROPERTIES OF HYDROGEN FLUORIDE-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-HF	HF-HF	N_2-N_2	N_2-HF	HF-HF	N_2-N_2	N_2-HF	HF-HF	
100	65	51	42	9	9	9	0.03	0.02	0.02	100
200	128	103	82	18	17	17	0.10	0.10	0.09	200
300	179	153	125	26	26	26	0.21	0.21	0.20	300
400	223	197	167	33	34	35	0.34	0.36	0.36	400
500	262	236	206	39	41	44	0.50	0.54	0.55	500
600	297	272	242	44	44	51	0.69	0.75	0.78	600
700	330	305	277	49	54	59	0.89	0.99	1.04	700
800	361	336	309	54	60	66	1.12	1.24	1.33	800
900	390	365	339	59	66	73	1.37	1.52	1.64	900
1000	418	393	368	63	72	80	1.63	1.82	1.98	1000
1100	445	420	395	67	77	87	1.91	2.14	2.34	1100
1200	471	445	421	71	82	94	2.21	2.48	2.72	1200
1300	496	470	446	75	88	101	2.52	2.84	3.13	1300
1400	521	494	471	80	94	108	2.85	3.22	3.56	1400
1500	544	517	494	84	99	115	3.20	3.62	4.00	1500
1600	568	539	517	89	105	122	3.56	4.03	4.47	1600
1700	591	561	540	95	112	129	3.94	4.46	4.96	1700
1800	613	583	561	101	118	135	4.33	4.91	5.47	1800
1900	635	604	582	108	124	141	4.73	5.37	5.99	1900
2000	656	624	603	115	131	147	5.15	5.85	6.54	2000
2100	677	644	623	121	137	154	5.59	6.35	7.10	2100
2200	698	664	643	126	143	160	6.03	6.86	7.68	2200
2300	718	684	662	131	148	166	6.50	7.38	8.28	2300
2400	738	703	681	136	154	172	6.97	7.92	8.89	2400
2500	758	722	700	141	159	177	7.46	8.48	9.52	2500
2600	778	740	718	146	163	183	7.96	9.05	10.17	2600
2700	797	759	736	151	170	189	8.47	9.63	10.84	2700
2800	816	777	754	155	174	194	9.00	10.23	11.52	2800
2900	835	795	772	160	180	200	9.54	10.84	12.21	2900
3000	853	812	789	165	185	205	10.09	11.47	12.92	3000

TABLE 53. TRANSPORT PROPERTIES OF HYDROGEN FLUORIDE-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-6}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	HF-HF	HF-A	A-A	HF-HF	HF-A	A-A	HF-HF	HF-A	A-A	
100	42	57	83	9	8	7	0.02	0.02	0.02	100
200	82	114	166	17	14	12	0.09	0.09	0.09	200
300	125	171	237	26	21	17	0.20	0.21	0.19	300
400	167	221	298	35	28	22	0.36	0.36	0.32	400
500	206	267	352	44	35	26	0.55	0.54	0.47	500
600	242	308	401	51	40	30	0.78	0.75	0.65	600
700	277	347	447	59	46	34	1.04	0.98	0.85	700
800	309	383	490	66	51	37	1.33	1.24	1.06	800
900	339	417	531	73	56	40	1.64	1.52	1.30	900
1000	368	449	569	80	61	43	1.98	1.82	1.55	1000
1100	395	480	607	87	66	45	2.34	2.14	1.82	1100
1200	421	509	642	94	71	48	2.72	2.48	2.11	1200
1300	446	538	677	101	76	51	3.13	2.84	2.41	1300
1400	471	565	710	108	81	54	3.56	3.22	2.72	1400
1500	494	592	743	115	86	56	4.00	3.62	3.05	1500
1600	517	618	775	122	91	59	4.47	4.04	3.40	1600
1700	540	643	806	129	95	62	4.96	4.47	3.76	1700
1800	561	668	837	135	99	64	5.47	4.92	4.14	1800
1900	582	692	866	141	104	67	5.99	5.38	4.52	1900
2000	603	715	896	147	108	69	6.54	5.86	4.93	2000
2100	623	738	925	154	113	72	7.10	6.36	5.34	2100
2200	643	761	953	160	117	74	7.68	6.87	5.77	2200
2300	662	784	981	166	121	77	8.28	7.40	6.21	2300
2400	681	806	1008	172	125	79	8.89	7.94	6.66	2400
2500	700	827	1035	177	129	82	9.52	8.50	7.13	2500
2600	718	849	1062	183	133	84	10.17	9.07	7.61	2600
2700	736	870	1088	189	137	86	10.84	9.66	8.10	2700
2800	754	890	1114	194	141	89	11.52	10.26	8.60	2800
2900	772	911	1140	200	145	91	12.21	10.88	9.12	2900
3000	789	931	1165	205	149	94	12.92	11.50	9.64	3000

TABLE 54. TRANSPORT PROPERTIES OF DEUTERIUM FLUORIDE-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-DF	DF-DF	N_2-N_2	N_2-DF	DF-DF	N_2-N_2	N_2-DF	DF-DF	
100	65	66	69	9	10	12	0.03	0.03	0.03	100
200	128	133	140	18	21	25	0.10	0.12	0.14	200
300	179	191	208	26	31	37	0.21	0.25	0.30	300
400	223	242	268	33	40	48	0.34	0.42	0.52	400
500	262	287	322	39	48	58	0.50	0.62	0.78	500
600	297	328	372	44	56	68	0.69	0.86	1.08	600
700	330	366	417	49	63	77	0.89	1.12	1.42	700
800	361	402	460	54	70	86	1.12	1.41	1.79	800
900	390	436	500	59	77	95	1.37	1.72	2.19	900
1000	418	468	538	63	84	105	1.63	2.05	2.62	1000
1100	445	498	575	67	90	114	1.91	2.41	3.08	1100
1200	471	528	610	71	96	122	2.21	2.79	3.57	1200
1300	496	556	644	75	102	130	2.52	3.19	4.09	1300
1400	521	584	676	80	109	138	2.85	3.61	4.64	1400
1500	544	611	708	84	115	146	3.20	4.05	5.21	1500
1600	568	637	739	89	121	154	3.56	4.51	5.80	1600
1700	591	663	769	95	128	161	3.94	4.98	6.42	1700
1800	613	688	798	101	134	168	4.33	5.48	7.07	1800
1900	635	713	827	108	141	175	4.73	5.99	7.74	1900
2000	656	737	855	115	148	182	5.15	6.53	8.43	2000
2100	677	760	883	121	155	189	5.59	7.08	9.14	2100
2200	698	784	910	126	161	196	6.03	7.65	9.88	2200
2300	718	807	937	131	167	203	6.50	8.23	10.63	2300
2400	738	829	963	136	172	209	6.97	8.83	11.41	2400
2500	758	852	989	141	178	216	7.46	9.45	12.21	2500
2600	778	873	1014	146	184	222	7.96	10.08	13.03	2600
2700	797	895	1040	151	190	229	8.47	10.73	13.88	2700
2800	816	916	1064	155	195	235	9.00	11.40	14.74	2800
2900	835	937	1089	160	200	241	9.54	12.08	15.62	2900
3000	853	958	1113	165	206	247	10.09	12.78	16.52	3000

TABLE 55. TRANSPORT PROPERTIES OF DEUTERIUM FLUORIDE-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	DF-DF	DF-A	A-A	DF-DF	DF-A	A-A	DF-DF	DF-A	A-A	
100	69	73	83	12	9	7	0.03	0.03	0.02	100
200	140	149	166	25	18	12	0.14	0.11	0.09	200
300	208	217	237	37	29	17	0.30	0.25	0.19	300
400	268	276	298	48	34	22	0.52	0.42	0.32	400
500	322	329	352	58	42	26	0.78	0.62	0.47	500
600	372	377	401	68	49	30	1.08	0.85	0.65	600
700	417	421	447	77	55	34	1.42	1.12	0.85	700
800	460	463	490	86	61	37	1.79	1.40	1.06	800
900	500	502	531	95	67	40	2.19	1.71	1.30	900
1000	538	540	569	105	74	43	2.62	2.05	1.55	1000
1100	575	575	607	114	79	45	3.08	2.41	1.82	1100
1200	610	610	642	122	85	48	3.57	2.79	2.11	1200
1300	644	643	677	130	90	51	4.09	3.19	2.41	1300
1400	676	675	710	138	96	54	4.64	3.61	2.72	1400
1500	708	706	743	146	101	56	5.21	4.05	3.05	1500
1600	739	737	775	154	106	59	5.80	4.52	3.40	1600
1700	769	767	806	161	111	62	6.42	5.00	3.76	1700
1800	798	796	837	168	116	64	7.07	5.49	4.14	1800
1900	827	824	866	175	121	67	7.74	6.01	4.52	1900
2000	855	852	896	182	125	69	8.43	6.55	4.93	2000
2100	883	880	925	189	130	72	9.14	7.10	5.34	2100
2200	910	907	953	196	135	74	9.88	7.67	5.77	2200
2300	937	933	981	203	140	77	10.63	8.25	6.21	2300
2400	963	959	1008	209	144	79	11.41	8.86	6.66	2400
2500	989	985	1035	216	149	82	12.21	9.48	7.13	2500
2600	1014	1010	1062	222	153	84	13.03	10.11	7.61	2600
2700	1040	1035	1088	229	157	86	13.88	10.77	8.10	2700
2800	1064	1060	1114	235	161	89	14.74	11.44	8.60	2800
2900	1089	1084	1140	241	166	91	15.62	12.12	9.12	2900
3000	1113	1108	1165	247	170	94	16.52	12.82	9.64	3000

TABLE 56. TRANSPORT PROPERTIES OF HYDROGEN CHLORIDE-HELIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	HCL-HCL	HCL-HE	HE-HE	HCL-HCL	HCL-HE	HE-HE	HCL-HCL	HCL-HE	HE-HE	
100	-	-	99	-	-	73	-	-	0.29	100
200	96	116	156	9	62	115	0.06	0.35	0.92	200
300	146	155	202	14	83	152	0.13	0.70	1.84	300
400	196	188	244	19	103	187	0.23	1.14	3.01	400
500	243	218	282	24	122	220	0.36	1.65	4.41	500
600	286	246	317	28	140	252	0.51	2.24	6.04	600
700	327	272	350	32	156	281	0.68	2.89	7.88	700
800	365	297	382	36	172	308	0.86	3.61	9.92	800
900	402	320	412	40	186	332	1.07	4.39	12.20	900
1000	436	343	441	44	200	357	1.29	5.23	14.60	1000
1100	469	365	470	47	213	380	1.52	6.12	17.20	1100
1200	500	386	497	51	227	403	1.77	7.07	20.10	1200
1300	531	407	523	54	239	425	2.04	8.07	23.00	1300
1400	560	426	549	58	252	447	2.32	9.13	26.30	1400
1500	588	446	574	61	264	468	2.61	10.23	29.60	1500
1600	615	465	598	65	276	488	2.92	11.39	33.20	1600
1700	642	484	622	68	288	508	3.24	12.59	36.90	1700
1800	668	502	646	72	300	528	3.57	13.84	40.80	1800
1900	693	520	669	75	311	547	3.91	15.14	44.90	1900
2000	718	537	692	79	332	566	4.27	16.48	49.10	2000
2100	742	555	714	82	333	585	4.63	17.86	53.50	2100
2200	766	571	736	85	344	603	5.01	19.30	58.10	2200
2300	789	588	757	89	355	622	5.41	20.77	62.80	2300
2400	812	605	778	92	366	640	5.81	22.29	67.70	2400
2500	834	621	799	95	376	657	6.22	23.84	72.80	2500
2600	856	637	820	98	386	674	6.64	25.44	78.00	2600
2700	878	653	840	102	396	691	7.08	27.09	83.40	2700
2800	899	668	860	105	406	708	7.52	28.77	88.90	2800
2900	920	683	880	109	416	724	7.98	30.49	94.60	2900
3000	941	699	899	112	426	740	8.44	32.25	101.00	3000

TABLE 57. TRANSPORT PROPERTIES OF HYDROGEN CHLORIDE-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-HCL	HCL-HCL	N_2-N_2	N_2-HCL	HCL-HCL	N_2-N_2	N_2-HCL	HCL-HCL	
100	65	-	-	9	-	-	0.03	-	-	100
200	128	113	96	18	13	9	0.10	0.08	0.06	200
300	179	167	146	26	20	14	0.21	0.17	0.13	300
400	223	215	196	33	26	19	0.34	0.29	0.23	400
500	262	259	243	39	31	24	0.50	0.44	0.36	500
600	297	298	286	44	36	28	0.69	0.61	0.51	600
700	330	334	327	49	40	32	0.89	0.80	0.68	700
800	361	369	365	54	45	36	1.12	1.00	0.86	800
900	390	401	402	59	49	40	1.37	1.23	1.07	900
1000	418	431	436	63	53	44	1.63	1.47	1.29	1000
1100	445	461	469	67	57	47	1.91	1.73	1.52	1100
1200	471	489	500	71	61	51	2.21	2.01	1.77	1200
1300	496	516	531	75	64	54	2.52	2.30	2.04	1300
1400	521	542	560	80	69	58	2.85	2.60	2.32	1400
1500	544	567	588	84	72	61	3.20	2.92	2.61	1500
1600	568	592	615	89	76	65	3.56	3.26	2.92	1600
1700	591	616	642	95	81	68	3.94	3.61	3.24	1700
1800	613	640	668	101	86	72	4.33	3.97	3.57	1800
1900	635	663	693	108	91	75	4.73	4.34	3.91	1900
2000	656	685	718	115	97	79	5.15	4.73	4.27	2000
2100	677	707	742	121	101	82	5.59	5.13	4.63	2100
2200	698	729	766	126	105	85	6.03	5.54	5.01	2200
2300	718	750	789	131	110	89	6.50	5.97	5.41	2300
2400	738	772	812	136	114	92	6.97	6.41	5.81	2400
2500	758	792	834	141	118	95	7.46	6.86	6.22	2500
2600	778	813	856	146	122	98	7.96	7.32	6.64	2600
2700	797	833	878	151	126	102	8.47	7.79	7.08	2700
2800	816	853	899	155	130	105	9.00	8.27	7.52	2800
2900	835	872	920	160	134	109	9.54	8.77	7.98	2900
3000	853	892	941	165	138	112	10.09	9.28	8.44	3000

TABLE 58. TRANSPORT PROPERTIES OF HYDROGEN CHLORIDE-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$) HCL-HCL	HCL-A	A-A	Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$) HCL-HCL	HCL-A	A-A	Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$) HCL-HCL	HCL-A	A-A	Temp. (K)
100	-	-	83	-	-	7	-	-	0.02	100
200	96	127	166	9	11	13	0.06	0.07	0.09	200
300	146	191	237	14	16	19	0.13	0.16	0.19	300
400	196	247	298	19	22	25	0.23	0.28	0.32	400
500	243	299	352	24	29	32	0.36	0.42	0.47	500
600	286	346	401	28	33	38	0.51	0.52	0.65	600
700	327	389	447	32	38	44	0.68	0.77	0.85	700
800	365	429	490	36	43	50	0.86	0.97	1.06	800
900	402	468	531	40	48	57	1.07	1.19	1.30	900
1000	436	504	569	44	53	63	1.29	1.43	1.55	1000
1100	469	539	607	47	57	67	1.52	1.68	1.82	1100
1200	500	572	642	51	62	74	1.77	1.95	2.11	1200
1300	531	604	677	54	66	79	2.04	2.23	2.41	1300
1400	560	635	710	58	71	85	2.32	2.53	2.72	1400
1500	588	665	743	61	75	90	2.61	2.84	3.05	1500
1600	615	694	775	65	80	95	2.92	3.17	3.40	1600
1700	642	723	806	68	84	100	3.24	3.51	3.76	1700
1800	668	750	837	72	88	105	3.57	3.86	4.14	1800
1900	693	778	866	75	92	109	3.91	4.23	4.52	1900
2000	718	804	896	79	95	112	4.27	4.61	4.93	2000
2100	742	830	925	82	98	115	4.63	5.00	5.34	2100
2200	766	856	953	85	101	118	5.01	5.40	5.77	2200
2300	789	881	981	89	105	121	5.41	5.82	6.21	2300
2400	812	906	1008	92	107	123	5.81	6.24	6.66	2400
2500	834	930	1035	95	110	125	6.22	6.68	7.13	2500
2600	856	954	1062	98	112	127	6.64	7.13	7.61	2600
2700	878	978	1088	102	115	129	7.08	7.59	8.10	2700
2800	899	1001	1114	105	118	131	7.52	8.06	8.60	2800
2900	920	1024	1140	109	121	133	7.98	8.55	9.12	2900
3000	941	1047	1165	112	123	135	8.44	9.04	9.64	3000

TABLE 59. TRANSPORT PROPERTIES OF HYDROGEN CHLORIDE-HYDROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	HCL-HCL	HCL-H_2	H_2-H_2	HCL-HCL	HCL-H_2	H_2-H_2	HCL-HCL	HCL-H_2	H_2-H_2	
100	-	-	38	-	-	68	-	-	0.20	100
200	96	57	66	9	68	128	0.06	0.32	0.71	200
300	146	82	89	14	98	182	0.13	0.69	1.43	300
400	196	104	108	19	120	221	0.23	1.17	2.33	400
500	243	123	125	24	140	257	0.36	1.73	3.39	500
600	286	140	141	28	159	291	0.51	2.37	4.59	600
700	327	156	156	32	178	325	0.68	3.09	5.93	700
800	365	171	170	36	198	360	0.86	3.88	7.41	800
900	402	185	184	40	217	394	1.07	4.74	9.00	900
1000	436	199	197	44	236	428	1.29	5.66	10.72	1000
1100	469	212	209	47	253	460	1.52	6.65	12.56	1100
1200	500	224	221	51	272	493	1.77	7.69	14.50	1200
1300	531	237	233	54	290	526	2.04	8.79	16.56	1300
1400	560	248	244	58	308	559	2.32	9.95	18.72	1400
1500	588	260	256	61	326	592	2.61	11.16	20.99	1500
1600	615	271	267	65	344	624	2.92	12.42	23.36	1600
1700	642	282	277	68	362	657	3.24	13.74	25.82	1700
1800	668	292	288	72	380	689	3.57	15.11	28.39	1800
1900	693	303	298	75	397	720	3.91	16.53	31.05	1900
2000	718	313	308	79	415	752	4.27	18.00	33.80	2000
2100	742	323	318	82	432	783	4.63	19.51	36.64	2100
2200	766	333	328	85	449	813	5.01	21.08	39.58	2200
2300	789	343	337	89	466	843	5.41	22.69	42.60	2300
2400	812	352	347	92	482	873	5.81	24.35	45.71	2400
2500	834	362	356	95	499	903	6.22	26.05	48.91	2500
2600	856	371	365	98	515	932	6.64	27.80	52.19	2600
2700	878	380	374	102	531	960	7.08	29.59	55.56	2700
2800	899	389	383	105	546	987	7.52	31.43	59.00	2800
2900	920	398	392	109	561	1014	7.98	33.31	62.54	2900
3000	941	407	400	112	577	1042	8.44	35.23	66.15	3000

TABLE 60. TRANSPORT PROPERTIES OF HYDROGEN CHLORIDE-ATOMIC HYDROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	HCL-HCL	HCL-H	H-H	HCL-HCL	HCL-H	H-H	HCL-HCL	HCL-H	H-H	
100	-	-	34	-	-	106	-	-	0.37	100
200	96	47	57	9	92	176	0.06	0.52	1.22	200
300	146	66	75	14	123	232	0.13	1.08	2.42	300
400	196	83	91	19	149	279	0.23	1.80	3.90	400
500	243	97	105	24	173	322	0.36	2.65	5.66	500
600	286	110	118	28	195	363	0.51	3.62	7.65	600
700	327	122	130	32	217	402	0.68	4.70	9.88	700
800	365	134	142	36	237	438	0.86	5.89	12.32	800
900	402	145	153	40	256	473	1.07	7.17	14.98	900
1000	436	155	164	44	275	507	1.29	8.56	17.83	1000
1100	469	165	175	47	293	539	1.52	10.03	20.88	1100
1200	500	175	185	51	310	570	1.77	11.60	24.12	1200
1300	531	184	194	54	327	600	2.04	13.25	27.53	1300
1400	560	193	204	58	344	630	2.32	14.99	31.13	1400
1500	588	202	213	61	359	658	2.61	16.80	34.90	1500
1600	615	210	222	65	375	686	2.92	18.70	38.84	1600
1700	642	219	231	68	391	714	3.24	20.68	42.94	1700
1800	668	227	240	72	406	740	3.57	22.74	47.20	1800
1900	693	235	249	75	420	766	3.91	24.87	51.62	1900
2000	718	243	257	79	435	792	4.27	27.07	56.20	2000
2100	742	251	265	82	450	818	4.63	29.35	60.93	2100
2200	766	259	273	85	464	843	5.01	31.70	65.81	2200
2300	789	266	281	89	478	867	5.41	34.12	70.83	2300
2400	812	274	289	92	492	891	5.81	36.62	76.01	2400
2500	834	281	297	95	505	915	6.22	39.18	81.32	2500
2600	856	288	305	98	518	938	6.64	41.81	86.78	2600
2700	878	295	312	102	532	962	7.08	44.50	92.38	2700
2800	899	302	320	105	544	984	7.52	47.27	98.11	2800
2900	920	309	327	109	558	1007	7.98	50.10	103.98	2900
3000	941	316	334	112	571	1029	8.44	52.99	109.99	3000

TABLE 61. TRANSPORT PROPERTIES OF HYDROGEN CHLORIDE-FLUORINE MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	HCL-HCL	HCL-F_2	F_2-F_2	HCL-HCL	HCL-F_2	F_2-F_2	HCL-HCL	HCL-F_2	F_2-F_2	
100	-	-	86	-	-	10	-	-	0.02	100
200	96	130	168	9	14	19	0.06	0.08	0.10	200
300	146	193	236	14	21	28	0.13	0.17	0.20	300
400	196	248	293	19	28	37	0.23	0.29	0.33	400
500	243	298	344	24	34	45	0.36	0.43	0.49	500
600	286	344	391	28	40	52	0.51	0.60	0.67	600
700	327	386	434	32	45	59	0.68	0.78	0.87	700
800	365	425	475	36	50	65	0.86	0.99	1.09	800
900	402	462	513	40	55	71	1.07	1.21	1.33	900
1000	436	498	550	44	60	77	1.29	1.45	1.58	1000
1100	469	531	586	47	64	82	1.52	1.70	1.85	1100
1200	500	564	620	51	69	88	1.77	1.97	2.14	1200
1300	531	595	653	54	73	93	2.04	2.26	2.45	1300
1400	560	625	685	58	77	97	2.32	2.56	2.77	1400
1500	588	654	716	61	81	102	2.61	2.87	3.10	1500
1600	615	683	747	65	86	107	2.92	3.20	3.45	1600
1700	642	711	777	68	90	112	3.24	3.54	3.82	1700
1800	668	738	806	72	94	116	3.57	3.90	4.20	1800
1900	693	764	835	75	98	121	3.91	4.26	4.59	1900
2000	718	790	863	79	102	125	4.27	4.65	5.00	2000
2100	742	816	891	82	106	130	4.63	5.04	5.42	2100
2200	766	841	918	85	109	134	5.01	5.44	5.86	2200
2300	789	865	945	89	113	138	5.41	5.86	6.30	2300
2400	812	890	972	92	117	143	5.81	6.29	6.76	2400
2500	834	914	998	95	121	147	6.22	6.73	7.24	2500
2600	856	937	1023	98	124	151	6.64	7.18	7.72	2600
2700	878	960	1049	102	128	155	7.08	7.65	8.22	2700
2800	899	983	1074	105	132	159	7.52	8.12	8.73	2800
2900	920	1006	1098	109	136	163	7.98	8.61	9.25	2900
3000	941	1028	1123	112	139	167	8.44	9.11	9.79	3000

TABLE 62. TRANSPORT PROPERTIES OF HYDROGEN CHLORIDE-ATOMIC FLUORINE MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\,m^{-1}\,K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\,s^{-1} \cdot 10^{-4}$)			Temp. (K)
	HCL-HCL	HCL-F	F-F	HCL-HCL	HCL-F	F-F	HCL-HCL	HCL-F	F-F	
100	-	-	78	-	-	13	-	-	0.04	100
200	96	120	152	9	18	27	0.06	0.10	0.17	200
300	146	178	213	14	26	38	0.13	0.23	0.36	300
400	196	229	265	19	33	47	0.23	0.40	0.60	400
500	243	276	311	24	39	54	0.36	0.59	0.88	500
600	286	318	354	28	44	61	0.51	0.82	1.21	600
700	327	356	393	32	49	67	0.68	1.08	1.57	700
800	365	393	430	36	54	73	0.86	1.36	1.97	800
900	402	427	464	40	59	79	1.07	1.66	2.40	900
1000	436	460	498	44	64	84	1.29	1.99	2.86	1000
1100	469	491	530	47	68	89	1.52	2.34	3.35	1100
1200	500	521	561	51	72	94	1.77	2.71	3.88	1200
1300	531	549	591	54	76	99	2.04	3.10	4.43	1300
1400	560	577	620	58	80	103	2.32	3.52	5.01	1400
1500	588	604	648	61	84	108	2.61	3.95	5.61	1500
1600	615	631	676	65	88	112	2.92	4.40	6.25	1600
1700	642	656	703	68	92	117	3.24	4.87	6.91	1700
1800	668	681	729	72	96	121	3.57	5.36	7.60	1800
1900	693	706	756	75	100	126	3.91	5.87	8.31	1900
2000	718	730	781	79	104	130	4.27	6.39	9.05	2000
2100	742	753	806	82	108	134	4.63	6.93	9.81	2100
2200	766	777	831	85	111	138	5.01	7.49	10.59	2200
2300	789	799	855	89	115	142	5.41	8.06	11.40	2300
2400	812	822	879	92	119	146	5.81	8.65	12.23	2400
2500	834	844	903	95	122	150	6.22	9.26	13.09	2500
2600	856	866	926	98	125	153	6.64	9.88	13.97	2600
2700	878	887	949	102	129	157	7.08	10.52	14.87	2700
2800	899	908	971	105	133	161	7.52	11.18	15.79	2800
2900	920	929	994	109	137	165	7.98	11.85	16.74	2900
3000	941	950	1016	112	140	168	8.44	12.53	17.70	3000

TABLE 63. TRANSPORT PROPERTIES OF DEUTERIUM CHLORIDE-HELIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\,m^{-1}K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\,s^{-1} \cdot 10^{-4}$)			Temp. (K)
	DCL-DCL	DCL-HE	HE-HE	DCL-DCL	DCL-HE	HE-HE	DCL-DCL	DCL-HE	HE-HE	
100	79	82	99	-	-	73	0.02	0.12	0.29	100
200	160	139	155	19	67	115	0.09	0.42	0.92	200
300	238	184	199	24	88	152	0.21	0.83	1.84	300
400	308	223	244	28	107	187	0.35	1.35	3.01	400
500	372	258	284	32	126	220	0.53	1.95	4.41	500
600	429	290	322	37	144	252	0.74	2.64	6.04	600
700	482	321	359	41	161	281	0.97	3.41	7.88	700
800	532	350	394	45	176	308	1.23	4.26	9.92	800
900	579	378	429	50	191	332	1.50	5.17	12.20	900
1000	623	404	461	54	205	357	1.80	6.16	14.60	1000
1100	666	430	494	58	219	380	2.12	7.21	17.20	1100
1200	707	455	525	63	233	403	2.45	8.33	20.10	1200
1300	746	479	556	67	246	425	2.81	9.51	23.00	1300
1400	784	503	586	71	259	447	3.19	10.75	26.30	1400
1500	821	526	614	75	271	468	3.58	12.06	29.60	1500
1600	857	548	643	79	283	488	3.99	13.41	33.20	1600
1700	892	570	671	83	295	508	4.41	14.83	36.90	1700
1800	926	591	698	87	307	528	4.86	16.30	40.80	1800
1900	960	613	725	91	319	547	5.32	17.83	44.90	1900
2000	992	633	752	95	330	566	5.79	19.41	49.10	2000
2100	1024	654	778	99	342	585	6.28	21.05	53.50	[illegible]
2200	1056	674	804	102	352	603	6.79	22.73	58.10	[illegible]
2300	1087	693	830	106	364	622	7.31	24.47	62.80	2300
2400	1118	713	855	109	374	640	7.85	26.26	67.70	2400
2500	1148	732	880	112	384	657	8.40	28.09	72.80	2500
2600	1177	750	905	115	394	674	8.96	29.98	78.00	2600
2700	1206	769	929	119	405	691	9.54	31.91	83.40	2700
2800	1235	787	953	121	414	708	10.13	33.89	88.90	2800
2900	1264	805	977	124	424	724	10.74	35.92	94.60	2900
3000	1292	823	1001	126	433	740	11.36	37.99	101.00	3000

TABLE 64. TRANSPORT PROPERTIES OF DEUTERIUM CHLORIDE-NITROGEN MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-6}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	N_2-N_2	N_2-DCL	DCL-DCL	N_2-N_2	N_2-DCL	DCL-DCL	N_2-N_2	N_2-DCL	DCL-DCL	
100	65	71	79	9	-	-	0.03	0.02	0.02	100
200	128	143	160	18	18	19	0.10	0.10	0.09	200
300	179	206	238	26	25	24	0.21	0.21	0.21	300
400	223	261	308	33	31	28	0.34	0.35	0.35	400
500	262	310	372	39	35	32	0.50	0.52	0.53	500
600	297	354	429	44	40	37	0.69	0.72	0.74	600
700	330	396	482	49	45	41	0.89	0.93	0.97	700
800	361	434	532	54	49	45	1.12	1.17	1.23	800
900	390	471	579	59	54	50	1.37	1.43	1.50	900
1000	418	505	623	63	58	54	1.63	1.71	1.80	1000
1100	445	539	666	67	62	58	1.91	2.01	2.12	1100
1200	471	571	707	71	67	63	2.21	2.33	2.45	1200
1300	496	601	746	75	71	67	2.52	2.66	2.81	1300
1400	521	631	784	80	75	71	2.85	3.01	3.19	1400
1500	544	661	821	84	79	75	3.20	3.38	3.58	1500
1600	568	689	857	89	84	79	3.56	3.76	3.99	1600
1700	591	717	892	95	89	83	3.94	4.16	4.41	1700
1800	613	744	926	101	94	87	4.33	4.58	4.86	1800
1900	635	770	960	108	99	91	4.73	5.01	5.32	1900
2000	656	797	992	115	105	95	5.15	5.45	5.79	2000
2100	677	822	1024	121	110	99	5.59	5.91	6.28	2100
2200	698	847	1056	126	114	102	6.03	6.39	6.79	2200
2300	718	872	1087	131	118	106	6.50	6.87	7.31	2300
2400	738	897	1118	136	122	109	6.97	7.38	7.85	2400
2500	758	921	1148	141	126	112	7.46	7.89	8.40	2500
2600	778	944	1177	146	130	115	7.96	8.42	8.96	2600
2700	797	968	1206	151	135	119	8.47	8.97	9.54	2700
2800	816	991	1235	155	138	121	9.00	9.52	10.13	2800
2900	835	1014	1264	160	142	124	9.54	10.09	10.74	2900
3000	853	1036	1292	165	146	126	10.09	10.68	11.36	3000

TABLE 65. TRANSPORT PROPERTIES OF DEUTERIUM CHLORIDE-ARGON MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	DCL-DCL	DCL-A	A-A	DCL-DCL	DCL-A	A-A	DCL-DCL	DCL-A	A-A	
100	79	80	83	-	-	7	0.02	0.02	0.02	100
200	160	163	166	19	15	12	0.09	0.09	0.09	200
300	238	238	237	24	21	19	0.21	0.20	0.19	300
400	308	304	298	28	25	22	0.35	0.34	0.32	400
500	372	362	352	32	29	26	0.53	0.50	0.47	500
600	429	415	401	37	33	30	0.74	0.69	0.65	600
700	482	464	447	41	37	34	0.97	0.91	0.85	700
800	532	510	490	45	41	37	1.23	1.14	1.06	800
900	579	554	531	50	45	40	1.50	1.40	1.30	900
1000	623	595	569	54	48	43	1.80	1.67	1.55	1000
1100	666	635	607	58	51	45	2.12	1.96	1.82	1100
1200	707	673	642	63	55	48	2.45	2.27	2.11	1200
1300	746	710	677	67	59	51	2.81	2.60	2.41	1300
1400	784	745	710	71	62	54	3.19	2.94	2.72	1400
1500	821	780	743	75	65	56	3.58	3.30	3.05	1500
1600	857	813	775	79	69	59	3.99	3.68	3.40	1600
1700	892	846	806	83	72	62	4.41	4.07	3.76	1700
1800	926	878	837	87	75	64	4.86	4.48	4.14	1800
1900	960	910	866	91	79	67	5.32	4.90	4.52	1900
2000	992	941	896	95	82	69	5.79	5.33	4.93	2000
2100	1024	971	925	99	85	72	6.28	5.78	5.34	2100
2200	1056	1001	953	102	88	74	6.79	6.25	5.77	2200
2300	1087	1030	981	106	91	77	7.31	6.72	6.21	2300
2400	1118	1059	1008	109	94	79	7.85	7.22	6.66	2400
2500	1148	1087	1035	112	97	82	8.40	7.72	7.13	2500
2600	1177	1115	1062	115	100	84	8.96	8.24	7.61	2600
2700	1206	1143	1088	119	102	86	9.54	8.77	8.10	2700
2800	1235	1170	1114	121	104	88	10.13	9.32	8.60	2800
2900	1264	1197	1140	124	107	91	10.74	9.87	9.12	2900
3000	1292	1224	1165	126	110	94	11.36	10.45	9.64	3000

TABLE 66. TRANSPORT PROPERTIES OF DEUTERIUM CHLORIDE-DEUTERIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	DCL-DCL	DCL-D_2	D_2-D_2	DCL-DCL	DCL-D_2	D_2-D_2	DCL-DCL	DCL-D_2	D_2-D_2	
100	79	55	58	-	-	58	0.02	0.08	0.16	100
200	160	103	96	19	60	101	0.09	0.31	0.52	200
300	238	141	126	24	82	141	0.21	0.63	1.03	300
400	308	174	152	28	102	176	0.35	1.04	1.66	400
500	372	203	175	32	121	210	0.53	1.52	2.40	500
600	429	229	197	37	140	243	0.74	2.07	3.25	600
700	482	254	218	41	157	274	0.97	2.68	4.20	700
800	532	277	238	45	175	305	1.23	3.35	5.24	800
900	579	299	256	50	193	336	1.50	4.08	6.37	900
1000	623	320	275	54	209	365	1.80	4.86	7.58	1000
1100	666	341	292	58	225	393	2.12	5.69	8.88	1100
1200	707	361	309	63	242	421	2.45	6.58	10.25	1200
1300	746	380	325	67	258	449	2.81	7.51	11.71	1300
1400	784	399	341	71	273	476	3.19	8.49	13.24	1400
1500	821	417	357	75	288	502	3.58	9.52	14.84	1500
1600	857	435	372	79	303	528	3.99	10.59	16.51	1600
1700	892	452	387	83	318	554	4.41	11.71	18.26	1700
1800	926	469	402	87	333	579	4.86	12.87	20.07	1800
1900	960	486	416	91	348	605	5.32	14.08	21.95	1900
2000	992	502	430	95	362	630	5.79	15.33	23.90	2000
2100	1024	518	444	99	376	654	6.28	16.62	25.91	2100
2200	1056	534	457	102	390	678	6.79	17.95	27.98	2200
2300	1087	550	471	106	404	702	7.31	19.32	30.12	2300
2400	1118	565	484	109	417	726	7.85	20.73	32.32	2400
2500	1148	580	497	112	431	750	8.40	22.18	34.58	2500
2600	1177	595	510	115	444	774	8.96	23.67	36.90	2600
2700	1206	610	522	119	458	797	9.54	25.20	39.28	2700
2800	1235	625	535	121	471	821	10.13	26.76	41.72	2800
2900	1264	639	547	124	484	844	10.74	28.36	44.21	2900
3000	1292	653	559	126	497	868	11.36	30.00	46.77	3000

TABLE 67. TRANSPORT PROPERTIES OF DEUTERIUM CHLORIDE-ATOMIC DEUTERIUM MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	DCL-DCL	DCL-D	D-D	DCL-DCL	DCL-D	D-D	DCL-DCL	DCL-D	D-D	
100	79	44	50	-	-	79	0.02	0.13	0.27	100
200	160	83	83	19	74	130	0.09	0.47	0.90	200
300	238	113	109	24	97	170	0.21	0.96	1.79	300
400	308	139	132	28	116	204	0.35	1.58	2.88	400
500	372	162	152	32	134	237	0.53	2.32	4.18	500
600	429	184	171	37	152	267	0.74	3.15	5.65	600
700	482	203	189	41	168	295	0.97	4.09	7.29	700
800	532	222	206	45	183	321	1.23	5.11	9.10	800
900	579	240	223	50	198	347	1.50	6.22	11.06	900
1000	623	257	238	54	212	371	1.80	7.41	13.17	1000
1100	666	273	254	58	226	395	2.12	8.68	15.42	1100
1200	707	289	268	63	240	418	2.45	10.02	17.81	1200
1300	746	304	283	67	253	440	2.81	11.44	20.33	1300
1400	784	319	296	71	266	461	3.19	12.94	22.99	1400
1500	821	334	310	75	278	482	3.58	14.51	25.77	1500
1600	857	348	323	79	291	503	3.99	16.14	28.68	1600
1700	892	362	336	83	303	523	4.41	17.85	31.71	1700
1800	926	376	349	87	315	543	4.86	19.62	34.85	1800
1900	960	389	361	91	327	563	5.32	21.46	38.12	1900
2000	992	402	373	95	336	582	5.79	23.36	41.50	2000
2100	1024	415	385	99	350	601	6.28	25.33	44.99	2100
2200	1056	428	397	102	360	619	6.79	27.36	48.59	2200
2300	1087	440	409	106	371	637	7.31	29.45	52.30	2300
2400	1118	453	420	109	382	655	7.85	31.60	56.12	2400
2500	1148	465	431	112	392	673	8.40	33.81	60.05	2500
2600	1177	477	443	115	402	690	8.96	36.08	64.08	2600
2700	1206	488	453	119	413	707	9.54	38.40	68.21	2700
2800	1235	500	464	121	422	724	10.13	40.79	72.45	2800
2900	1264	512	475	124	432	740	10.74	43.23	76.78	2900
3000	1292	523	486	126	441	757	11.36	45.73	81.22	3000

TABLE 68. TRANSPORT PROPERTIES OF DEUTERIUM CHLORIDE-FLUORINE MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\,m^{-1}\,K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\,s^{-1} \cdot 10^{-4}$)			Temp. (K)
	DCL-DCL	DCL-F_2	F_2-F_2	DCL-DCL	DCL-F_2	F_2-F_2	DCL-DCL	DCL-F_2	F_2-F_2	
100	-	-	86	-	-	10	-	-	0.02	100
200	160	165	168	19	19	19	0.09	0.09	0.10	200
300	238	239	236	24	26	28	0.21	0.20	0.20	300
400	308	303	293	28	32	37	0.35	0.35	0.33	400
500	372	359	344	32	38	45	0.53	0.51	0.49	500
600	429	411	391	37	44	52	0.74	0.70	0.67	600
700	482	458	434	41	50	59	0.97	0.92	0.87	700
800	532	503	475	45	55	65	1.23	1.15	1.09	800
900	579	545	513	50	60	71	1.50	1.41	1.33	900
1000	623	586	550	54	65	77	1.80	1.69	1.58	1000
1100	666	624	586	58	70	82	2.12	1.98	1.85	1100
1200	707	661	620	63	75	88	2.45	2.29	2.14	1200
1300	746	697	653	67	80	93	2.81	2.62	2.45	1300
1400	784	731	685	71	84	97	3.19	2.96	2.77	1400
1500	821	765	716	75	88	102	3.58	3.33	3.10	1500
1600	857	798	747	79	93	107	3.99	3.70	3.45	1600
1700	892	830	777	83	97	112	4.41	4.10	3.82	1700
1800	926	862	806	87	101	116	4.86	4.51	4.20	1800
1900	960	892	835	91	106	121	5.32	4.93	4.59	1900
2000	992	923	863	95	110	125	5.79	5.37	5.00	2000
2100	1024	952	891	99	114	130	6.28	5.82	5.42	2100
2200	1056	982	918	102	118	134	6.79	6.29	5.86	2200
2300	1087	1010	945	106	122	138	7.31	6.77	6.30	2300
2400	1118	1039	972	109	126	143	7.85	7.26	6.76	2400
2500	1148	1066	998	112	129	147	8.40	7.77	7.24	2500
2600	1177	1094	1023	115	133	151	8.96	8.29	7.72	2600
2700	1206	1121	1049	119	137	155	9.54	8.83	8.22	2700
2800	1235	1148	1074	121	140	159	10.13	9.37	8.73	2800
2900	1264	1174	1098	124	143	163	10.74	9.94	9.25	2900
3000	1292	1200	1123	126	146	167	11.36	10.51	9.79	3000

TABLE 69. TRANSPORT PROPERTIES OF DEUTERIUM CHLORIDE-ATOMIC FLUORINE MIXTURES

Temp. (K)	Viscosity ($Nsm^{-2} \cdot 10^{-5}$)			Thermal Conductivity ($W\ m^{-1}\ K^{-1} \cdot 10^{-3}$)			Diffusion Coefficient ($m^2\ s^{-1} \cdot 10^{-4}$)			Temp. (K)
	DCL-DCL	DCL-F	F-F	DCL-DCL	DCL-F	F-F	DCL-DCL	DCL-F	F-F	
100	79	76	78	-	-	13	0.02	0.03	0.04	100
200	160	154	152	19	23	27	0.09	0.13	0.17	200
300	238	222	213	24	31	38	0.21	0.28	0.36	300
400	308	281	265	28	37	47	0.35	0.48	0.60	400
500	372	333	311	32	43	54	0.53	0.71	0.88	500
600	429	381	354	37	49	61	0.74	0.98	1.21	600
700	482	425	393	41	54	67	0.97	1.28	1.57	700
800	532	467	430	45	59	73	1.23	1.60	1.97	800
900	579	506	464	50	64	79	1.50	1.96	2.40	900
1000	623	543	498	54	69	84	1.80	2.34	2.86	1000
1100	666	579	530	58	73	89	2.12	2.75	3.35	1100
1200	707	613	561	63	78	94	2.45	3.18	3.88	1200
1300	746	647	591	67	83	99	2.81	3.64	4.43	1300
1400	784	679	620	71	87	103	3.19	4.12	5.01	1400
1500	821	710	648	75	91	108	3.58	4.62	5.61	1500
1600	857	741	676	79	95	112	3.99	5.14	6.25	1600
1700	892	770	703	83	100	117	4.41	5.69	6.91	1700
1800	926	800	729	87	104	121	4.86	6.26	7.60	1800
1900	960	828	756	91	108	126	5.32	6.84	8.31	1900
2000	992	856	781	95	112	130	5.79	7.45	9.05	2000
2100	1024	884	806	99	116	134	6.28	8.08	9.81	2100
2200	1056	911	831	102	120	138	6.79	8.73	10.59	2200
2300	1087	937	855	106	124	142	7.31	9.40	11.40	2300
2400	1118	964	879	109	127	146	7.85	10.08	12.23	2400
2500	1148	989	903	112	131	150	8.40	10.79	13.09	2500
2600	1177	1015	926	115	134	153	8.96	11.51	13.97	2600
2700	1206	1040	949	119	138	157	9.54	12.25	14.87	2700
2800	1235	1065	971	121	141	161	10.13	13.02	15.79	2800
2900	1264	1089	994	124	144	165	10.74	13.79	16.74	2900
3000	1292	1114	1016	126	147	168	11.36	14.59	17.70	3000

APPENDIX

Errata to TPRC Report 20 [1]

on	change	to
page 1, Eq. 3	10^6 D	10^5 D
page 6, line 7	[16]	[22]
page 7, line 8 of text	[8]	[5]
page 9, lines 6, 8 of text	Table 2	Table 1
pages 18-64	$Nsm^{-2} \cdot 10^{-4}$	$Nsm^{-2} \cdot 10^{-5}$
pages 18-64	The diffusion coefficient tabulated is for p = 1 atm.	

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